

FIELD WORK MANUAL

EUGENICS
AND
SOCIAL WELFARE

BULLETIN NO. X



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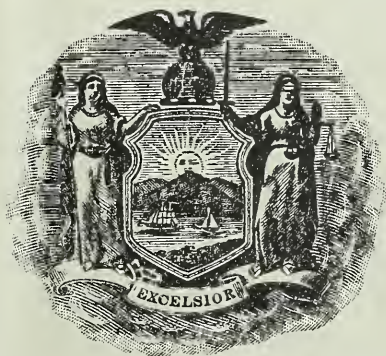


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THE BUREAU OF ANALYSIS AND INVESTIGATION

FIELD WORK MANUAL

EUGENICS AND SOCIAL WELFARE BULLETIN

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FOREWORD

The necessity of standards for the use of investigators engaged in field work in connection with the study of dependency, delinquency and defect became apparent at the time of the organization of the Bureau of Analysis and Investigation — one of the Bureaus of the Department of State and Alien Poor — to which was assigned a number of investigators selected as qualified by study and experience for the important work assigned to the new Bureau. Dr. Gertrude E. Hall, who had previously served in the Department as Inspector of Almshouses, took charge of the new Bureau and began the work of training the staff of investigators.

During the five years Dr. Hall was connected with the Bureau the necessity of a Manual covering the ordinary problems of investigators became so urgent that the Department decided to prepare one and as the experience of Dr. Hall and her assistants had indicated the essential qualifications of successful field workers, it was decided that she should utilize this experience in the preparation of a Manual which could be used not only by investigators appointed to work as members of the staff of the State Board of Charities but be suggestive also to other persons connected with institutions or private organizations who might desire to undertake field work. The present Manual is offered with these ends in view and no doubt will be revised from time to time as further experience indicates may be necessary.

Dr. Hall has now left the service of this Board and returned to her native State where she has been appointed by the Maine State Board of Charities to organize and supervise an important branch of its work. It is proper to say that the credit for this Manual belongs to her.

ROBERT W. HILL,
Superintendent State and Alien Poor.

The Capitol, Albany, N. Y.,
September 15, 1917.



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FIELD WORK MANUAL

CHAPTER 1

THE PURPOSE OF FIELD WORK

Field work is a form of social research which has developed in connection with the study of the environment and heredity of feeble-mindedness, epilepsy, criminality and insanity. It has been practiced but a few years, and the methods are still relatively unformed. The Bureau of Analysis and Investigation has done five years of field work, following in the main the principles suggested by the Eugenics Record Office. For the benefit of its own new investigators and to place its experience at the service of other beginners, the aim and methods followed are here set forth.

Precision and Uniformity of Method.

Field workers should be highly trained, and their college work be supplemented by experience in the field to make them competent observers of social and physical phenomena. Hence each agency which employs field workers should supervise their training for months or years and not set them to work independently without guidance; for if left to themselves they will develop marked idiosyncrasies, with the result that their work will not be comparable with that of others. It is important that all traits on which an investigator gathers data should be inquired about in every case, for otherwise erroneous impressions of the frequency of a trait or condition will prevail. If one field worker inquires always about adenoids, and another records them only when especially called to attention through mouth breathing or facial deformity, the frequency of adenoids in the one set of histories will be much greater than in the other.

There are many things which a field worker would like to know about a family, but for lack of time it is impossible in one visit to inquire about them all. Hence the points to be considered

should be stated clearly and effort made to check these for every person charted. In even recent field work many persons have been recorded whose traits were nearly if not quite unknown, because of residence in another state or for some other reason. Smaller charts more carefully filled out are a desideratum. It is doubtful if pedigrees need to be carried very far into the side lines, but it is certain that the parents, grandparents and first cousins should be thoroughly studied.

In field work study the traits which are plainly visible before looking for the more obscure ones. The latter are usually developed only by much questioning. For example, it is quite possible for an investigator, from personal knowledge, to report upon the physical traits of a family, on their environment, school records and industrial efficiency, whereas the discussion of convulsions in infancy may be clouded by the fact that the family and the investigator vary in their definition of convulsions. Through imperfect understanding of the subject, or through faulty memory, the family may quite innocently give information that is altogether wrong and misleading. Every field worker has been saved, often at the last minute, from making an erroneous report on some vital point, such as paternity. Further to emphasize this point, let anyone consider, if she tried honestly to account for the moral and emotional peculiarities in her own family, persons whom she knows best of all, whether she could unravel and elucidate the tangled web of motives and sentiments, inherited predispositions and acquired tastes and habits.

Need of more Refined Measurements

Field work is not easy, but by gradual stages its methods may be perfected. Probably the time will come when the extensive cataloguing of characteristics may be abandoned in favor of the careful measurement of relatively few traits. In this way laboratory science has been refined until one theme at a time is studied to the exclusion of all others. The complexity of the human machine and of the mind seems at present such an obstacle to the analysis of all traits, that we must be content to approximate the social efficiency of individuals and families.

Rough Methods of Evaluating Conduct

The community at large has a rough but effective scheme for measuring persons, and rating them as useful, passable, or no-account members of society. The rough psychology of everyday life throws much light on the queerness or normality of the persons studied, and the evaluation of their morality by neighbors discloses whether they line up to the accepted community standard or not. Standards of conduct vary so much in different places, even in those only a few miles apart, that it is difficult to compare the morality of one family with that of another.

The trading of wives for a small consideration which is frequent in some backwoods communities is shocking to most people in this country, but to live as man and wife, even out of wedlock, must be recognized as a great advance over general promiscuity.

Not all persons think out their own moral standards. They accept those of their own social class as correct, or if very individualistic, sometimes rebel against them and live differently. It is not to be expected that the average person will thoughtfully question the moral code to which he has been trained, and it is not fair to brand him as a wanton sex offender if he lives up to his light, even though he does not reach the standard of the next higher social order. Goodness is relative, moral codes are man-made and subject to change. Perhaps one outcome of social research will be the development of a more active interest in the moral standards of the people with the result that the state will take measures to elevate the concepts of its more backward communities.

Philosophy of Field Work.

Field work should be a study of growth and development, both physical, mental and moral. In order to interpret the phenomena of character one must understand normal growth. A person's growth is either average, accelerated or retarded. Certain pathological changes and variations may creep in, but field work which regards all phenomena as indications of the universal law of growth will most surely discover the intimate relation of things.

For this reason feeble-mindedness should not be thought of as a thing apart, working under different laws from those which

govern normality and talent. A feeble-minded person is one who, if he had grown and developed normally, might have been normal. He is a deviate from the average, not a strange monstrosity. As variations occur both in physical and mental growth the greatest pains should be taken to understand the anatomical and physiological laws controlling physical development, in order to correlate them with the laws of mental growth which are less understood. The ideal of the race, "*mens sana in corpore sano*," must be upheld.

A Word about Genius

In passing a word may be said about genius. Genius is rare and its occurrence cannot be predicted. In certain scientific pursuits and in music heredity seems to count, especially in the male line. Some of the greatest geniuses have appeared unexpectedly in the commonest walks of life. The explanation offered by Jacobson is suggestive though unproved: He says: "So-called secondary selves coexist in the subliminal mental life and in certain circumstances may usurp the reign of the primary self for varying periods of time. Genius may reside in the secondary personality of a person of superior mental endowment. Genius may not be an element of the ordinary self at all. The genius is a superman,—a man plus a secondary personality. Is there not a striking analogy between a Paganini, or a Shelley, or an Edison in the throes of creation, oblivious to all about him, the primary self completely eclipsed for the moment, fairly possessed by his *daemon* or secondary self,—and the medium in a trance? Creative power is something that must be set free, sublimated. Inspired performance is a demonstration of successful conflict against repression, the *deus ex machina*. Bateson conceives of life as 'an unpacking of an original complex.' All men have divine potentialities packed in them somewhere, and the longshoreman has the same potentiality of greatness as a Shakespeare. So the genius instead of being one to whom something has been added from without, is one who for some reason or other has experienced a release of his powers. In him the forces that mask the hidden faculties of commonplace beings are abated or lost. Paralyze the inhibitions of a peasant and you get a Bobbie Burns. The real miracle that invites our contemplation is the paralysis of inhibitory mechanisms. The

release of creative secondary personalities would seem to depend largely upon some sort of intoxication, with resulting paralysis of inhibitions. Alcohol possibly set free the genius in Charles Lamb, Walt Whitman, Byron, Burns, Poe, Coleridge, Tennyson, Goldsmith, Addison, Swift, Steele, Pope, Dickens, Jack London and Alfred de Musset, while the tubercular toxin did it for Milton, Ruskin, Hawthorne, Shelley, Scott, Keats, E. B. Browning, Stevenson, Lanier, Rachel, Jane Austin, Voltaire, Paganini, Washington Irving and Paul Lawrence Dunbar." (Possible Clues to the Nature of Genius, N. Y. Med. Jl. Jan. 27, 1917, 105 No. 4, p. 152-3.)

Personal experience attests somewhat to the theory that we have in us an "imprisoned splendor" in the words of Wordsworth, for in our best moments, when a deepened experience has jarred us out of the dull monotony of daily drudgery and the commonplace, we feel the stirring of noble thoughts and a spiritual interpretation of life. There is a depth of personality which is not usually sounded or released.

The Public and Dependency

The psychology of the public toward its dependent and defective classes would make an interesting study. The primitive feeling toward that which is weak is probably disgust. Religion, however, teaches a sentiment of tolerance and helpfulness, which when carried to excess, means unwarranted consideration for that which is really parasitic. With the dawn of ideals of efficiency, has come the effort to deal with the dependent classes in a fair but economic way. By forming associated charities much overlapping of relief is avoided, and by placing the whole responsibility for a dependent family on one society it is gradually coming about that no longer one poor family receives several Thanksgiving dinners, while others equally worthy receive none. But most methods of relief accept poverty as inevitable, and are simply variations in the way of treating it, without tending in any fundamental way to lessen the problem of dependence.

Scientific Treatment of Pauperism

Pauperism is an exceedingly complex thing, but there is some indication that it is lessening, and there are those who care more

to get at its roots and try to eradicate it, than to practise the kindly art of relieving the poor. Here science steps in, and because of its very different point of view, perhaps it is well for the present to divorce the researchers who are looking for the causes of poverty from relief agents who are seeking economically to provide for those who cannot care for themselves. But eventually the work of the scientists should contribute a program for the guidance of relief givers, so that if there are some forms of relief-giving which are more harmful than helpful these may be studiously avoided. Relief which nourishes the body but destroys the soul is worse than useless.

Value of Work

It has been the universal experience of mankind that the human animal is as lazy as he dares to be, that he lets himself be waited on all he can, that the thoughts of the riches or benefits of others lead him to plan to get some of those things for himself, that he fawns on the rich and those who have favors to offer, that the more institutions are built, the more they become filled and taxed to their capacity, the more settlements and relief stations are operated the greater the clientele, that man seeks that which is easy, that which he can get without effort, and that all these thoughts and efforts on his part tend to weaken and soften his character. Work is one of the greatest moral forces in the world, and the lack of it can be seen detrimentally both in the idle poor and the idle rich. The age of luxury of a nation is often thought of as the beginning of the end, as shown in the decline of the Roman Empire. The ideal of the scientist in social economics, is to have every citizen earn by daily toil at least the value of that which he eats and enjoys, and the eugenist can add to this the desire and expectation that every member of the race shall be fit mentally and physically to do his bit of the world's work. The elimination of the feeble-minded, so often recommended in these later years, should depend on the productive power of the feeble-minded, on their ability to support themselves and obey the laws, rather than on their lack of personal charm and intelligence, or their inability to take part in the government, for there are more than enough persons desiring to do that now.

Thus the solution of the social problem, from the scientific point of view, means the discovery and eradication of those social conditions which cause a percentage of the population to fall below the desirable line in regard to self support, morals, conduct and intelligence, as well as in physical strength and health.

Handicaps in Field Work

In order to discover the principles underlying social conduct, one must make deep research into psychology and inheritance, as well as weigh the effects of environment. Reports on the life histories of certain families will throw great light on this problem provided the reports are accurate and complete. It is the difficulty of getting complete family histories that is one of the greatest drawbacks to field work. The older generations are dead, and the memory of them has more or less passed. The younger ones are too young to be rated for their intelligence and for other essential traits. The living adults are widely scattered, and the expense of travel forbids seeing them all. Thus when a family is turned in as finished many of the persons recorded are classified in no adequate way, but are referred to only by a few anecdotes or some conjecture as to their social adequacy. The attempt to get the proportion of acceptable members in each family is thus almost frustrated because of the large number which are really unknown, and one does not know whether they belong to the desirable or the undesirable group.

Ethics of Field Work

Field work is slow and expensive. The field worker must not be hurried, nor quit the field until every possible source of information has been consulted. A thorough investigation is undoubtedly hard upon the family, because while the members are taken by surprise by the first interview and do not seem to resent it, when afterwards they compare notes upon the personal and searching questions of the field workers, they are apt to think that something untoward has happened to them, the drift of which they do not understand and which they feel inclined to resent. Ethics justify field inquiry provided it leads to useful results, but otherwise not. The State undoubtedly has a right to study its population to decide

what is not worth further propagation, and for the discovery of conditions which tend to demoralization. Because of the expense involved and the infringement of the privacy of family homes, it is doubtful whether the purely private prosecution of field work is justified, as it is the State which alone has the right to be inquisitorial. Certainly the information, by whomsoever gained, should be the property of the State and be filed with the State's archives for the enlightenment of future generations. Imperfect as our field work is, it will be a much better legacy to the next generation than any of the social records which past generations have left to us. The failure of the State to determine whether our worst families are really on the up or down grade, limits our usefulness in dealing with them.

Degeneracy

The word degeneracy is often used, but it is hard to define. Is a degenerate one who has deteriorated, or whose family stock has deteriorated? Or are the so-called feeble-minded families really on the upgrade, improving slowly from their former estate? The treatment to be given them would depend very much on the answer to this question. It may be that both forces are working, one that tends toward the improvement of that which is low and undesirable, and another that tends toward the disintegration of that which was once acceptable but which has been under deteriorating influences and is degenerating.

Elimination of the Unfit

The study of the family chart of a defective family, especially of a bad one, leads almost inevitably to the thought that such a family ought to be cut off. But a further study of the chart often shows that where one branch of the family becomes desperately bad, this branch tends of itself to die out, and the proportion of good and bad members varies from generation to generation, so that by studying the family at any one point and there applying the pruning knife, one could not be perfectly certain just what proportion of desirable and undesirable progeny would be cut off. Faced with this argument the social worker often says: "Well, I guess we could spare that branch," but in reality the branch if

cut off, is cut off for all time, whereas, with better scientific knowledge, we might find that nature herself could rectify the matter in two or three generations, and that the rest of the family might be spared to populate the earth for untold generations. Cutting off a line for all eternity is a serious matter. If a number of very excellent family histories are charted in this generation, and the same families are studied with equal care in the next two or three generations it will presently be possible to see what the curve of development is. Homely adages, like "every third generation at the plow" seem to indicate that families are likely to revert to the mean or average, and that if they have become especially prosperous in one generation, the next generation tends to dissipate the excess of wealth, and perhaps in the third generation they will be back where the ancestor started. All of this is very interesting and well worth the study of the State.

Field Work and Heredity

Field work is thought of especially as a means of studying the inheritance of family traits, and it is in this regard that it requires very carefully trained workers, in order that the results of field work may not lead us astray in our theories of heredity, for the future welfare of the race depends very much on our knowledge of how to transmit or develop desirable traits. Some of the earlier field work was done on the hypothesis of the Mendelian law, but the traits so studied were in all probability not unit traits, and so were not suitable for Mendelian analysis. However, we hold that all field work is done better with an assumed hypothesis than with none, for the data gained should conform and not be scattered. Hence in field work, it is well to try to establish or destroy some hypothesis. Needless to say the investigator must be open-minded on the subject, and watch with an eagle eye the bearing of the facts upon the given hypothesis.

CHAPTER 2

QUALIFICATIONS OF A FIELD WORKER

Field work is interesting to those of scientific temperament, but it is not easy work. It requires youth and health and enthusiasm to meet the adversities of travel and to turn off the work satisfactorily. College trained persons are needed, not for their specific knowledge, but for their point of view. A field worker needs the ability to rise from the multitudinous details of the story to a generalization of the theme, and it requires a trained mind to do this.

The investigator should be sufficiently experienced to meet all classes of persons from laborers to professional men without embarrassment and with an understanding of their point of view. It is essential that the investigator should be able to be *en rapport* with the person interviewed, and this can be done only by sincerity, a ready sympathy and a knowledge of his standards of living. Physical qualifications are also of importance as the investigator must be able to stand the fatigue of travel, must be able to walk long distances if necessary and keep irregular hours. The health therefore must be such that personal matters may be subordinated to the interest in the work. The field worker should possess a curiosity both scientific and social which will survive fatigue and discouragement and have openness of mind, for in this case prejudice is little less than a crime.

A field worker should proceed with great honesty and sincerity in dealing with people, and have those qualities which make a good detective, for families of any intelligence will seek to conceal that which is not in their favor and hide the untoward things that have happened; hence the investigator must be able to detect all efforts to lead away from the tender points.

Women as Field Workers

On account of the many details which are inquired into relative to pregnancies, births and many other intimate matters, it is best, as a rule, that field workers should be women, for they can visit married women during the husband's absence without offence and can get many details which a refined woman would hesitate to tell

to a strange man. On the other hand, it sometimes happens that the field worker, in order to see some alcoholic or criminalistic member of the family will have to summon all her courage to meet him in one of his haunts, he being such a character as would not come to meet her at a more respectable *rendezvous*. In these circumstances a man investigator would have the advantage, but if the woman is dignified in bearing and not too timid by nature she can carry out her part without special danger or inconvenience.

Humor and Humanity

A good sense of humor is one of the best qualifications for a field worker, for if she can charm and entertain the people she visits she can rapidly win their friendship and good will and can get a much better interview. A sense of humor will also help her to overcome some of the great inconveniences of life on the road. An essential quality is that of humanity, or love of people generally, that will cause her to be warm hearted and sympathetic with those she meets, and will guide her not to hurt their feelings by senseless probing into their private affairs when they are too sensitive to bear it well. There are other ways of learning what is needed besides getting it from the immediate family, and one must use good judgment as to how far to carry the investigation, for the rights of the individuals interviewed must be conserved.

A preliminary course of study is desirable, but training in field work can best be gained by the supervision of those who have been longer in the business. There are many intricacies which must be worked out when met, and this can be done best with the advice of older and wiser field workers.

Medical knowledge

On account of the considerable medical knowledge that a field worker should have there are those who advocate the employment of physicians as field workers. A physician would have as much to learn in other lines as a layman would have to learn along the medical line, and while, other things being equal, full medical training would be desirable, it is not indispensable. A successful physician could make much more money in private practice than in field work, and many of the medical details desired can be

obtained only by questioning, and not by direct examination, so that the results obtained, even by a physician field worker, would lack much in precision and accuracy. If the position of field worker is further developed, it might be that in one or more places in the country a medical course of one or two years for field workers could be established. Here they should be trained to name and describe with great care the parts of the body, and especially the facial physiognomy. They should learn the characteristics of all diseases which have an hereditary or constitutional basis, and should become familiar with the principles of growth and metabolism, as well as the phenomena of senility and decay. Clinics in mental diseases would train them to describe mental symptoms, if not to make diagnoses.

Psychology

Psychological training is indispensable for field workers, for unless the diagnosis of feeble-mindedness is to be made by guesswork, there is need of the application of mental tests, especially to the younger members of families. There is yet to be invented a series of tests for adults so simple, and veiled in such a cloak of conversation, that the adults do not recognize that they are being tested. This seems quite feasible, and even though it were only an imperfect means of diagnosis at least it would give a comparative standard as between various individuals.

English

Training in English composition is also indispensable to the field worker, for most family histories are long, and are inclined to be quite unreadable unless written with good diction and a clear, interesting style. It ought not to be necessary to rely upon anecdotes to keep up the interest of the reader, for the human documents are of vital interest if the exposition is good.

CHAPTER 3

GENERAL DESCRIPTION OF FIELD WORK

The general method of field work was developed in Bulletin No. 2 of the Eugenics Record Office, entitled "The Study of Human Heredity," May, 1911. The Bureau of Analysis and Investigation has followed this method and summarized it as follows:

Order of record

In making the record, the first page should contain the name of the person investigated, his photograph, the name of the institution where he resides or the class of cases to which he belongs, the date of admission to the institution, the date of making the investigation and that of making the record. The references used in the investigation and their addresses should also be given on the first page. If the list of references is long they may be grouped according to location. For various reasons, possibly to explain certain omissions or to assist in a future investigation it is advisable to indicate those individuals who have been seen by the investigator. These may be indicated by using a star before the name of the individual and a note may be used on the first page explaining the meaning of this symbol.

The first general subject should deal with the patient and his home. It should contain a full account of the patient's personal history, including prenatal conditions, his birth, infancy, childhood, ability and conduct at school, a description of the patient's health and a copy of the physical examination at the time of admission to the institution, and notes in regard to his institutional life. There should be a description of his native environment, both immediate and general, an account of the financial condition of the family and of the home treatment. Besides the description of each individual, there should be recorded the date of his birth, his birth-place, the date and cause of his death, and his last residence. Next should be taken up in order of birth a description of the patient's sibs and half-sibs, then the patient's father, his brothers and sisters, the father's father, the father's mother, their fraternities and any others in the paternal line; next a description of the patient's mother and her fraternity, etc.

In order to distinguish the paternal and maternal lines on the charts, green is sometimes used for the lines connecting the individuals on the paternal side, and red on the maternal. In the type-written record the same scheme of red and green lines may be used to underline the names of the various individuals in order to make their names stand out on the page. In the case of the patient and his sibs one red and one green line may be used to indicate a blending of the two lines.

Summary and Chart

It has been the rule to require the field worker to write a summary at the end of the history by way of interpretation. It is customary in some places to leave this interpretation to some one else, but as the investigator knows the family better than any other person as a field worker she should attempt the interpretation of her own work. If greater scientists than she can improve her analysis so much the better.

The text and not the chart is the essential part of a history, but the chart, by its graphic representation, is very helpful. The method as laid down by Davenport and Goddard should be followed, as it is very desirable that all charting should be uniform.

The question is sometimes asked as to whether charts tell the truth, and it can best be answered by avoiding the question and stating that they do not take the place of records. The chart is the best known graphic representation of the relationship of the various individuals and their most prominent traits, and being a presentation of a most complicated matter, it necessarily has its limitations. There are few or no means of showing the various degrees of traits shown by the various individuals. A square or a circle may be marked A (alcoholic) although the individual may be self-supporting, law-abiding and fairly normal in his family relations. On the chart he is labeled similarly to the sot who is a social delinquent. As a matter of fact there are many things to be taken into consideration in deciding whether or not an individual is socially desirable, and one is not justified in too hastily labeling him "good" or "bad." From the social viewpoint at least, the individual's mentality (i. e. his native ability) is of primary importance and facts pertaining to his habits and social reactions are subordinate to this. For this

reason it would seem logical to place the symbol indicating his mentality within the square or circle and the other symbols around it on the outside. The tendency of most charts is to appear too black, to make a family appear worse than it really is and to make a family possessing mild taints and peculiarities seem to be markedly defective.

Description of Individuals

The descriptions of the individuals constitute the different pieces of mosaic which, taken together, make up the picture of the family as a whole. Descriptions of individuals can not be too complete. Isolated facts or incomplete information may give an entirely distorted idea of the subject and in this case a half truth may indeed be an untruth. One is justified, for this reason in relating all possible details which will produce an accurate picture.

In the description of each individual the following subjects should be considered if possible.

Appearance. General personal appearance, stature, bodily attitude, regularity of features, stigmata, facial expression, care of hair and dress.

Mentality. Native ability, education, habits, tastes, etc.

Conduct. Normalities and abnormalities of conduct, relation to certain members of the family (as that of parent to child, husband to wife, etc.), relation to the larger social group, (to churches, organizations or the social life of the community), ability to cope with environment, adaptability, satisfaction or dissatisfaction with life, characteristic mood, self assertiveness, etc.

Health. General bodily condition, energy, nervous condition, special ailments, etc.

CHAPTER 4

A SAMPLE OF FIELD WORK

The following case history and chart will in some measure indicate the nature of field work as done by the Bureau. Every piece of work falls far short of the desired degree of completeness.

CASE OF WILLIAM S., INCORRIGIBLE

Case referred by Mr. Wilbur B. S., Supt. of Schools, —— N. Y.

Investigation made March-April, 1917.

Record made April 6, 1917.

References

Mr. Wilbur B. S., Supt. of Schools, —— N. Y.

Miss Flora E. S., Prin. Albany St. School, —— N. Y.

Mr. and Mrs. James S., parents, ——, N. Y.

Mrs. James S., Sr., C——, N. Y.

Mr. John R., Truant officer, —— N. Y.

Mr. Thomas Mc B., landlord of the boy's grandmother, C——, N. Y.

Dr. Mc F., C——, N. Y.

Mr. John P., Overseer of the Poor, B——, N. Y.

Mr. B. C. M., Justice of the Peace, B——, N. Y.

Mr. Louis B., Clerk of Court, —— N. Y.

Public Records of —— and B——.

Files of The S—— Herald, S——, N. Y.

B—— State Hospital.

—— State Hospital.

House of the Good Shepherd,— N. Y.

O—— Co. Almshouse.

Court Records, —— and S——.

IV—I WILLIAM S. was born at S——, N. Y., May 2, 1904. He was first in line of birth of a family of seven children. His birth was premature, lacking 24 days of the normal term. Labor lasted only twenty minutes and birth was precipitant. His

mother had had diarrhea previous to his birth. He was nursed by his mother, cut his teeth at 8 months, walked at 14 months, and talked at the normal age. At one and one-half years he had a series of three convulsions which were attributed to eating meat. Other than this the physical history of his infancy and early childhood was uneventful.

He started going to school at five years but has changed schools often owing to the fact that his parents have often moved. At the time of the investigation he was attending the Albany St. School, ———, where he was in grade IV-B. When tested on Jan. 30, 1917 he was found to have a mental age of 11 1-12 years, and an Intelligence Quotient of 87. In appearance he is a big, healthy looking boy who gives his weight as 100 pounds.

He has a low, narrow forehead, a great shock of hair and hazel blue eyes. He has a retrognathic jaw and his upper and lower dental arches do not fit. Adenoids and tonsils have been removed. The upper part of the rim of the right ear is slightly folded. General appearance and facial expression are good, he talks rapidly and expresses himself well. He is active and energetic in his movements and in his play. Is fond of talking about himself and has considerable insight into his condition.

He stated to the person making the mental examination that he had "fits," and that his mother had told him that because he had them he would never amount to anything. According to his own account he sometimes falls in the attacks, and at other times is dizzy and does not know what he is doing. He describes a tingling sensation in the left wrist. This travels rapidly up the left arm, "winds all around in his brain" and makes him dizzy, and at times unconscious. He once fell down stairs while in this condition. After an attack he has a bad headache either all over his head or in the region behind the ears, and his teeth are sore where he has ground them together. He has never urinated or bitten his tongue during an attack. Mr. Albert K., 1120 K—— Ave. states that he saw him in an attack in the winter of 1916. He was unconscious for about two minutes, his muscles were rigid and his circulation greatly disturbed. Mr. K. attempted to revive him by putting snow on his forehead and the children with whom he was playing explained that he was subject to "fits."

At the time of the mental examination he seemed to be bright enough, but gave up easily; said he could not draw a diamond even after he had drawn a good one. Reacted in the same way to Test X 3. Seemed to be depressed and somewhat worried over his condition. Is extremely quarrelsome and pugnacious, hates his teachers and is always having a fight with one of the other boys. Belongs to a fighting club which has headquarters in a shanty in a back lot near his home. Is conscious of the fact that he has a bad temper but clearly can not control it.

The superintendent of schools and the principal of the school where he attends state that he is the most difficult boy to manage who has ever come under their care. He is a confirmed truant; is thievish, and has an unreasonable temper. In the classroom he is a disturbing element, whispers continually or will address the teacher when she is busy with another class, is untidy, destructive and wasteful. He does not follow directions or take suggestions, is impulsive and inclined to hurry his work without caring how it is done.

He apparently has no sustained effort, in arithmetic will do one example well, and if he makes a mistake will crush the paper up and throw it across the room. He is able to add, subtract, multiply and divide. He reads poorly; shows a tendency to rush along regardless of accuracy, leaving out words in places and inserting them in others. Is sullen if asked to repeat. His writing shows that he is erratic. Geography is difficult for him; he is unable to reason or make deductions. Spelling is his most difficult subject for he apparently has no sense of sound. In the afternoon he can not remember words that he has studied in the morning. He can do fairly well in a spelling lesson if the words are given him in the order in which they have been studied, but if they are mixed up he still writes many of them in the order in which they have been studied.

He is able to acquire things by rote, but takes little pride in his work and is always anxious to finish what he is doing and begin something else. He seems to have little knowledge of right and wrong, but is resentful and quarrelsome. He has on several occasions left home for two or three days at a time, slept in alleys and halls and sold newspapers to get food. His mother states

that she can control him when he is with her but that she has no influence with him when he is out of her sight. In school he has been so troublesome that the principal has had to move him from room to room in order to relieve the teacher. On one occasion when waiting alone in the principal's office he turned the clock ahead and succeeded in getting the school dismissed earlier than usual. In the summer of 1916, while staying with his grandmother in C—— he shot a boy by accident. Dr. McF. who attended the case says William notified him of the accident and acted with a coolness and haste that was noticeable and remarkable. He seemed not to be overcome with sympathy but to act solely out of self-protection.

Up to the time of his commitment to Industry his court record was as follows:

Arrested Feb. 24, 1915 on the charge of being an ungovernable child. Complaint made by policeman. Sentence suspended. Placed on probation.

Arrested Mar. 11, 1915. Rearrested on complaint of Probation Officer. Suspended sentence revoked. Committed to Industrial School for 4 months.

Arrested Oct. 13, 1915. Charged with violating Sect. 1999 of the Penal Law. Ordered to pay \$1.00 a week until \$5.00 was paid in restitution for property damaged.

Arrested Jan. 22, 1916 on a charge of vagrancy. Charge made by policeman. Sentence suspended.

Arrested May 19, 1916. Charge of truancy made by truant officer.

Arrested Dec. 5, 1916. Charge of petit larceny made by A. J. B. Boy admitted charge. Case withdrawn. Boy promised to pay for loss.

Arrested Jan. 23, 1917. Charge of petit larceny made by A. J. B. Boy had broken into cigar stand in Arcade Building. Had stolen candy and a chance card. Sentence deferred until March 22, 1917.

A letter from Mr. Maurice J. C., Supt. State Industrial School, dated April 5, 1917, states that William S.'s matron reports him to be a good healthy boy, utterly uncontrolled and very saucy. His teacher at the institution reports him to be rather bright.

Fraternity of the Person Studied

IV-2——, a miscarriage which occurred between 2 and 3 months.

IV-3——, also a miscarriage which occurred between 2 and 3 months.

* IV-4 RAYMOND S. was born at ——, Oct. 8, 1909. He was born at full term and his birth was in every way natural. He had no convulsions in infancy. He had one attack of rheumatism in 1914. General appearance is good; growth of hair heavy. In manner is more gentle and affable than his brother William. He is in Grade 2 A but will not pass out of his grade this year. Is described by his teacher as slow, always behind and never ready to begin. Is slow in motion and does not obey signals. In spelling is poor like his brother William. Requires a great deal of extra attention in the class room. Is mischievous but not quarrelsome.

IV-5 — miscarriage at 3 months. Mother had a curettement.

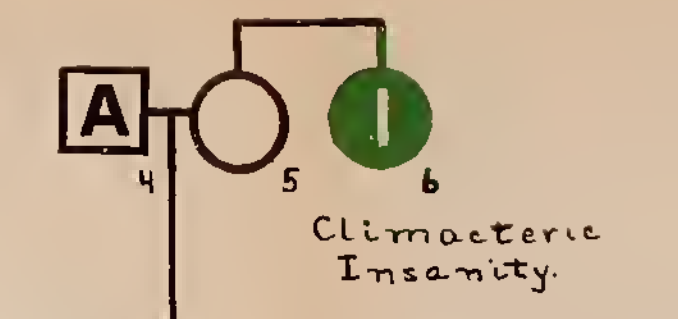
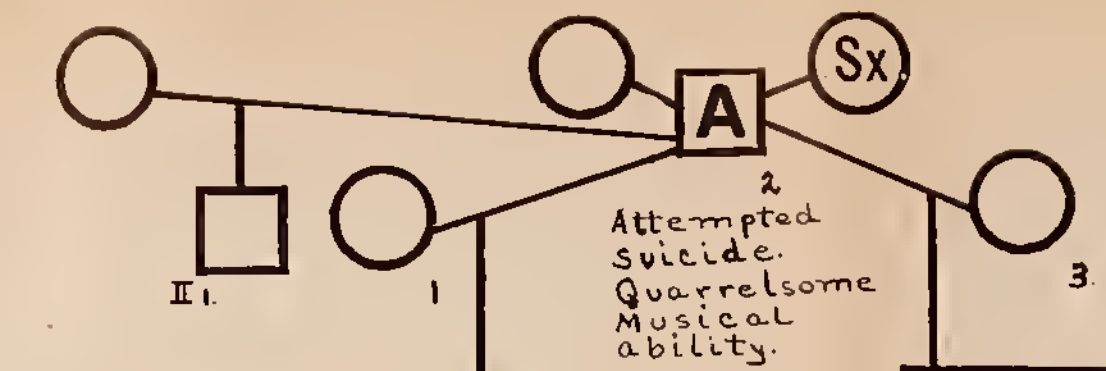
IV-6 ROBERT S. was born prematurely sometime after the 8th month. He died at 5 months of quinsy and pneumonia. Had convulsions. (Pub. Rec.)

* IV-7 MARGARET S. was born at —— July 13, 1916. She is a good looking and apparently healthy baby.

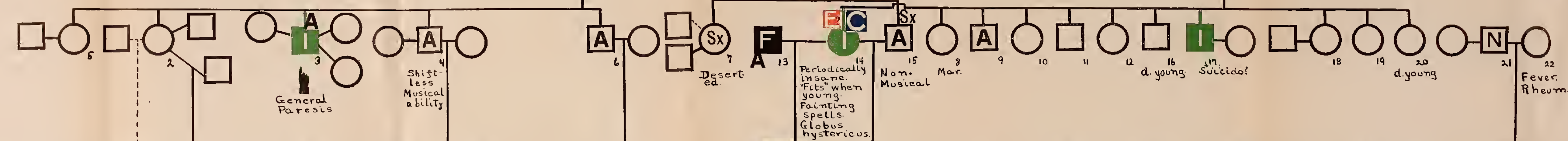
The Father.

* III-4 JAMES S. was born in —— in 1882. He is a large man of powerful physique; is prematurely bald, and has a large rounded pug nose. His coarse appearance and insolent and ignoble manner are strikingly those associated with a prize fighter. His conversation does not indicate that he possesses any characteristics to the contrary. He had little schooling, as he was inclined to play truant when a boy, and for this reason he can not read or write with any degree of ease. He is a roofer by occupation earning \$20.00 a week. He works steadily; is able to do heavy work and his services are valued, but he is unable to advance because of lack of education. He drinks steadily most of the time taking from 3 to 4 drinks a day; at times he will go for months without touching liquor and at other times he drinks to the point of intoxication. He is able to tolerate beer but whiskey makes him brutal and quarrelsome. He usually gives his wife \$15.00 a week to run

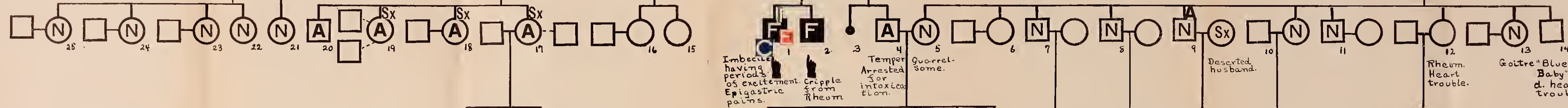
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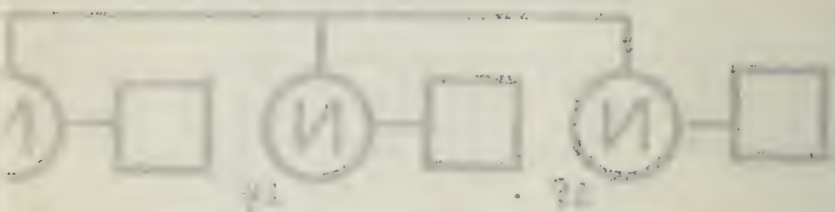
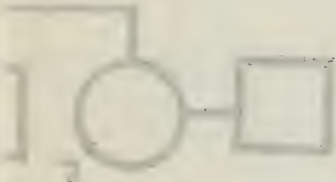
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the house, but at times he gets drunk and loses or spends the money. He has been arrested two or three times for drunkenness and disorderly conduct. His wife states that he will sometimes disappear for several days and then write her that he has obtained work in another city. Such habits have made it necessary for the family to move frequently. According to the wife's statement he spends little time in the house except when he is eating or sleeping. He takes no interest in training or amusing the children or in improving the home. He seldom takes his wife or children out and shows little interest in them. Under the influence of liquor he is often in an ugly temper and breaks dishes and furniture. An interview with him threw no light upon his son's condition; he merely gave an opinion that the teachers didn't understand the boy, and said when he was bad what he needed was "a licking." L1148 K. Ave., ——. Employed by the M. Roofing Company.

III-3 was still born.

Half brothers of the father by the same mother and her first husband, John A. C. were:

III-2 FRED C. was badly crippled with rheumatism, and according to relatives died when four years of age. His mother states that he was at one time in an institution in S—— but a search of the records of the various institutions has not substantiated her statement. According to reports he was mentally deficient.

III-1 IRVING C. was born at B—— (or S——) Feb. 13, 1878. Of his infancy and early childhood but little information could be obtained from a reliable source. On Aug. 23, 1881 he was placed in the House of the Good Shepherd, and except for a short time when he was returned to his mother, he remained there until Jan. 24, 1882. After that for a short time he was in the Protectorate at ——. His mother states that his step-father was cruel to him and that in his childhood he received many blows upon the head. To this she attributes his weak mental condition. A photograph taken Jan. 27, 1910, shows him to be fairly good looking except that he has a weak facial expression and outstanding ears. He has been admitted several times to the O—— County Penitentiary and to the O—— Co. Almshouse. From the first mentioned

place he was in 1897 transferred to the M—— State Hospital. Subsequently he was in the L—— State Hospital, St. L—— State Hospital, and finally in 1910 in the —— State Hospital. The following are notes taken at the time of his admission to the last named place. (Informant the patient's mother.)

The exact date of the patient's birth is unknown. He was not strong when a baby nor yet was he sickly, and he was nearly two when he learned to walk. As a child he was morose and irritable. At three he was sent to the House of the Good Shepherd and later to the Protectorate at —— where he remained for one year. At the last-named place he obtained all the education which he has. After leaving the institution he was placed out to work on farms and his mother saw little of him. He had a severe whipping at the hands of his step-father when he was two years old and it is not known whether or not he was injured. Afterward he became seclusive, afraid to speak and would not talk back. He wet the bed and occasionally soiled himself until he was 15 years of age. For 18 years previous to his admission to the —— State Hospital his mother saw him only occasionally. For the past 7 years she had not seen him at all and believed him to be dead. He is a common laborer and has little education. Several times in his life he has used beer and tobacco to excess. Before the age of 25 he had served 3 terms in the O—— Co. Penitentiary under the names of Irving C., and Irving S. While serving his fourth term of 6 months there for vagrancy, he struck the keeper on the head with an iron instrument and was sent to M——.

The following is an extract from the record at the —— State Hospital:

When first received at M—— he was tremulous and nervous; did not know why he was sent there and was unable to give the dates of his terms in the penitentiary. He had to be restrained to prevent masturbation. After a time he began working but did so inefficiently. He was childish and easily influenced by other patients and continually practiced abnormal sexual habits. In Nov. 1898 he was noted as being irritable, quarrelsome and lacking in self control. He continued so until Nov. 11, 1899 when he was discovered trying to escape. On Feb. 8, 1900 he was transferred to K—— State Hospital where he continued to show

childish, simple conduct with occasional noisy spells during which he would be violent and threatening. On several occasions he was very obscene. At times he would talk a great deal about his own ability and capabilities. He escaped twice from the hospital but was recovered. In May 1909 he became very irritable and complained of being sick. He said that people were abusing him, destroyed his clothing, and would wander about the country saying that he was looking for work. He had periods when he would scream and cry.

A few days prior to commitment he went to the State Fair and drank considerably. After this he was found wandering aimlessly about the freight yards in S——, apparently trying to find a place to lie down. He carried a flash light and was discovered on account of it. He was arrested and sent to St. Joseph's Hospital, S——. On the way to the hospital he was quiet but made threats that he would elope. On admission to the —— State Hospital (1910) he adjusted himself readily to his surroundings and was pleasant and agreeable. He was orientated as to time, place and person and his memory for recent events was unimpaired. His insight into his own condition was doubtful, at times he would admit that he had said things which were out of the way, but at no time would he admit that he was insane. His memory for remote events was very defective. His educational test was negative; he could not give the alphabet or months, and could not count backward from twenty. He gave only a hazy account of his arrest and commitment; denied hallucinations and ideas of persecution.

From the apparently congenital defective makeup, a tendency to alcoholism and more or less periodic attacks of excitement, a diagnosis of *Excitement in an Imbecile* was made. (Constitutional inferiority.) While in the hospital he had two attacks of acute abdominal pain and called for morphine. On the first occasion when he found that he could not have morphine he quickly recovered. The second spell was of longer duration. No physical cause for pain could be found. A urine examination was negative; there was no temperature or increase of pulse.

At the time of admission his general physical condition was good; the record states that his skull is flat, ears thin and flaring,

lobules small and adherent and hair plentiful, lower face small. There is a scar from an operation for appendicitis, and tenderness all over the abdomen is marked. There is a history of many attacks of renal colic with polyuria and haematuria. Was found to be well developed and well nourished. The patient generally talks rapidly and often in an undertone which it is difficult to understand. He is easily irritated and quickly becomes excitable and quarrelsome. His mental trend is vague and resentful, and he has an idea that people are against him. His calculation is poor; he can not tell the product of two times four. Reading is poor; spells out words like *in*, *an* and *as*. His written name and address is illegible. He has no insight into his condition and does not appreciate that his irritability and excitement are other than those of a normal person. He says he is "not exactly crazy but just a little nervous." In Nov. 1910 he secreted a knife on his person in order to kill a physician. On Dec. 10, 1910, he threatened suicide. He was discharged Nov. 27, 1911 unimproved. Dr. T. of the U. State Hospital gave the following opinion of him at this time: "He has no sense of responsibility and has the general behavior of the patients one meets in a criminal institution."

At the time of the investigation the address of the person in question was unknown. Several months previous he had been living with a family in the country near B. His father would no longer care for him as he had stolen several suits of clothes on his last visit. His institutional record so far as it is known is as follows:

House of the Good Shepherd, U., admitted Aug. 23, 1881.

House of the Good Shepherd, U., readmitted Jan. 24, 1882.

St. Vincent Industrial School, U.

O. County Penitentiary (Has served several terms.)

House of the Good Shepherd (Hospital), S. Date unknown.

M. State Hospital, Admitted 1-26-1897, discharged 2-8-1900.

L. I. State Hospital, admitted 5-26-1903, discharged May 26, 1903.

K. P. State Hospital, admitted —, discharged May 26, 1903.

St. L. State Hospital, admitted 9-21-1909, discharged —.

U. State Hospital, admitted Jan. 26, 1910, discharged Nov. 27, 1911. (Escaped.)

O. County Home, admitted Nov. 28, 1912 — absconded Dec. 5, 1912.

O. County Home, admitted Aug. 19, 1913, discharged Aug. 25, 1913.

O. County Home, admitted Aug. 28, 1913, discharged Sept. 3, 1913.

O. County Home, admitted Oct. 19, 1914, discharged Oct. 21, 1914.

O. County Home, admitted Oct. 9, 1915, discharged Oct. 11, 1915.

III-2 FREDERICK C., born in 1874 was an imbecile and according to relatives was deformed from rheumatism. He died at the O. Orphan's Home when 6 years of age. According to reports he was mentally deficient.

* II-13 JOHN C., father of the two individuals previously described, is a feeble-minded man of unkempt appearance. He is usually employed as a coal heaver, receiving the lowest wages for his services. His work consists of loading coal, riding to the place of delivery and then assisting in unloading; he does not drive the team or take any responsibility. Is barely able to maintain himself. During the earlier part of his life he drank and was irregular in his matrimonial relations. He married Harriet L. after a week's acquaintance. Res. B., N. Y.

The Father's Father.

II-15 JAMES S. was born in U. and has lived in that vicinity during the greater part of his life. He is described as a man of low intelligence and lacking in moral principles. He was a heavy drinker during the early part of his life and when under the influence of liquor was ugly and abusive. He consorted openly with prostitutes making his wife insanely jealous, and he has associated with them even since his wife shot one of them in 1900. He is a laborer and roofer by occupation. He is unable to read and write and is not thrifty, but he works steadily and allows his wife to save his earnings. His standards of living are higher than they would otherwise be, owing to his wife's industry and thrift. Unlike several members of his fraternity he is non-musical. Res. C., N. Y.

II-7 MARY S. also known as G., married Jim C. and deserted him for another. Lived for a time in B. Was last heard of in A. where she was a member of a house of prostitution in which she was known as "G." Her family have not heard from her for years and believe her to be dead.

The mother of the two individuals mentioned above was Sarah B. Half-brothers and sisters by the same father and — M. were:

II-2 SUSAN S. lived with George W. and by him had 4 children. She has since married or lived with two other men. Is an average village woman of fair ability. Children are all normal and have taken good positions in life. Res. B., N. Y.

Descendants

III-25 MAMIE W. married — B. and lives in M.

III-24 NETTIE W. married — J. and lives in B.

III-23 CORA W. married Eugene A.

III-22 BLANCHE W. is dead.

III-21 LENA H. is a stenographer and lives in B.

II-3 JOHN S. was born in U. in 1856. He was a laborer by occupation and played in an orchestra for dances. He married three times but had no children. One of his wives was Hattie L. of O. He was a heavy drinker. Did not get along well with one of his wives and became divorced. He was admitted to the B. State Hospital in 1908, two months after his psychosis had developed. On admission he was confused, indifferent, and had hallucinations of hearing and sight. He expressed some delusions of an expansive nature; said he was married to a woman with \$6,000 and his wife was 92 years old. He was disoriented, memory was poor, judgment was very poor and insight lacking; physically his pupils were contracted; vision of right eye impaired. He had a tremor of his hands and tongue, gait was unsteady. There was a partial obliteration of the muscular folds of the left side of the face, with drooping left corner of the mouth. Left arm was flexed and rigid. There was a left Babinski. While at the hospital he had several seizures in which he would fall to the floor and be unconscious for a time. He showed a

gradual mental deterioration. His physical condition failed gradually and he died March 21, 1910. Diagnosis of insanity, general paresis. Cause of death, general paresis. The records at the O. County Almshouse show that he was there from Sept. 5, 1899, to Sept. 18, 1899, during recovery from an accident. Res. U. and O.

II-4 GEORGE S. was born in central New York and lived the greater part of his life at B. He was a laborer of shiftless, alcoholic habits. He married Annie H. and had a family of four children, all of whom turned out badly. His father said of him, "If you want to find out which house in the village George S. lives in, you may look for the one with the window lights out and the yard littered." Like several other members of his family he had natural musical ability which was not cultivated. Res. B.

Descendants

III-20 GEORGE S. is shiftless and alcoholic like his father. Is usually employed at lumbering jobs. Res. F., N. Y.

III-19 MAMIE S. never married but lived with two men and was immoral and alcoholic in her habits. She died at B. when still young.

III-18 NELLIE S. was also immoral and alcoholic. She married Charles B. and lived at O. F.

III-17 IDA S. was also immoral and alcoholic like her sisters. She married Harry K., and later lived with Charles B., her sister's husband. Her home life was of a low order and two of her children at least were brought up in orphan asylums. Died at O. F.

Descendants

IV-11 ——— married ——— M. and lives in O. Is reported to have been in some institution. Appearance is said to be cheap and flashy. Is said to have left her husband several times.

IV-10 HELEN (NELLIE) born in 1897 was in St. John's Orphan Asylum from 5-2-1903 to 2-23-1914. The Supt. of the orphan asylum states that she was defective, troublesome and stubborn; could not take reproof. Is supposed to have gone to the 7th grade, but it is doubtful whether she

passed on merit. For a time she was placed in the home of James D. of U. In this position she was clean in her habits but was unsatisfactory because she was unsettled and wanted to be running out nights. She was placed by Miss B., the county agent at R. S. but was returned to the orphan asylum because of granulated lids. She married a man named T. and was last known to be living in S., N. Y.

IV-9 MARY (ETHEL) K. was born in 1899. She is described as brighter than her sister Helen, as more studious and a plodder. She went to the 7th grade in school and did fairly well. Was obedient and stable in her conduct. After leaving the orphan asylum she married Ernest G. and went to live in N. She was in St. John's Orphan Asylum from 1903 to 1914.

II-5 ELIZABETH S. married John L. and lived in B. She died young and left no descendants.

II-6 WILLIAM S. was a laborer of alcholic habits. According to the reports of relatives he was a sot, being under the influence of liquor about three quarters of the time. His wife, Sarah M., belonged to a good family and was a woman of thrifty, industrious habits. Their descendants are referred to as one of the most respectable branches of the family. Res., N. Y.

Descendants

III-16 AGNES S. married ——. K. and lives in ——.

III-15 MARY S. lives in ——.

The father of the fraternity just described was:

I-2 GEORGE S. was born in Germany but spent the greater part of his life in the United States. He was a tailor by occupation; was of higher intelligence and had more education than most of his sons. He was neat in his personal appearance and had some pride in his surroundings. He was evidently highly sexed as he married five times and his last two wives were prostitutes. Relatives have offered the opinion that those of his descendants who have shown a weakness in sexual habits come rightly by it. He drank periodically, and when under the influence of liquor was inclined to be quarrelsome. He had musical ability although he

never had training, and with his three sons constituted an orchestra which played for D.'s Dancing Academy in ——. His wives whose names are known were Anna M., Sarah B., Eva K., an immoral woman, and Agnes F. of N. By the latter he had one son II-1 Eddie S. whose whereabouts are unknown.

The Father's Mother

* II-14 HARRIET L. was born in 1857 at M. in the Province of O. Canada. She is of English extraction, and one of a fraternity of twelve. Her father was a hunter, a man who drank to the point of intoxication whenever he went to town. She left home at the age of thirteen to accept employment as a household servant, and shortly after was told by her father that she must support herself. At 14 or 15 years of age she came to O. and went to live with an elderly woman. Within a week she was forced to marry John C. a feeble-minded man of alcoholic habits for whom she had no affection or regard. By him she had two children, both of whom were feeble in mind and body. On discovering that he was already married and had children by a former wife, she left him and began again to earn her living, having put her children in orphan asylums. In 1881 she married James S., and by him she had two more children, one of whom was stillborn. According to relatives she led a quiet life for several years; was moral in conduct, inclined to be religious; was industrious, home-loving and economical. Her home was of poor type and situated on the bank of the O. river in B., but according to all accounts it was neatly kept. Her husband was a laboring man of alcoholic and immoral habits. He consorted openly with prostitutes in the neighborhood, telling his wife that "it was none of her damned business," and excited her jealousy to such an extent that she shot one of them, a Mrs. O., on June 9, 1900. She was immediately put under arrest and was held for several months in the O. County Penitentiary awaiting trial. The record of the court proceedings held in Nov. 1900 throws much light upon her character and mental makeup. Testimony was given by Dr. D., Dr. L. and Dr. T. of S., as well as by neighbors and relatives. It was in substance as follows:

Dr. L. described her physical condition thus:—Nutrition poor, circulation poor, is emotional, cries easily, sometimes without sufficient cause, changes rapidly to a happy frame of mind. Pulse normal, a little tremulous, shows high tension. On a hypothetical basis a diagnosis of climacteric insanity was made with globus hystericus an invariable concomitant. This was confirmed by an hereditary taint, an erratic personal history, sex susceptibility as shown by an early marriage after a week's acquaintance, the production of defective children, and the over-emphasis of religious ideas.

The opinion of the specialists varied as to whether she was sane or insane, and as to whether she should be held responsible for the crime she had committed. She was pronounced not guilty owing to the fact that the jury considered her to be temporarily insane at the time when the crime was committed.

The testimony showed that her maternal aunt was affected with climacteric insanity and was at times so violent that she required confinement. A brother died in an insane asylum. Relatives stated that preceding the commitment of the crime they had for some months noted a change in her habits and conduct. She was in low spirits, was jealous and suspicious of her husband, her face was pinched and her mouth drawn down at the corners, she was despondent and morose, and at times had excited or hysterical moods when she showed marked religious fervor and enthusiasm. She wept much while about her work and was uneasy and unable to sleep when her husband was absent. She had complained of almost constant pains in the forehead which increased from day to day, and of a burning sensation in the top of her head. An uneasy feeling which she had had for a long time in her stomach increased; she had severe cramps and a sensation which she describes as like a ball rising in her stomach. She had pain in the region of her heart, palpitation, shortness of breath and hot flashes. In her infancy she was afflicted with swoons or "fits" or claims to have been told so by her mother, and in the month preceding the commitment of the crime she claims that she had periods of faintness. At the trial she said that God had taught her to read the Bible, said that God Almighty watched over her and controlled her acts; that she was only an instrument in his

hands; that she felt the spirit of God within her; that unseen voices at times directed her what to do. On one occasion when tired out with anxious waiting for her husband she sat up in bed and said, "Merciful God! what have I done! I can't stand such work at all," and directly she heard, as she believed, some spirit saying, "Lay down, thou weary one and rest," after which she went to sleep in a peaceful mood. It was observed that she often immediately forgot what she said and would say that she had not said it. She bought a gun as she claimed for self-protection, but at times she meditated upon suicide and mentioned it to her family. On one occasion she induced her husband to give her a teaspoonful of laudanum in the belief that it was some harmless medicine. Afterward she said that she had asked him to do it because it would be wrong for her to do it herself.

On the day of the murder her eyes were large and wild looking; she talked with her neighbors and the milkman in an hysterical manner about her husband's attentions to Mrs. O. Her menstruation had been suppressed and irregular. She believed that Mrs. O. was looking at her and harassing her. She went out to spy upon her husband and on returning home felt, as she expressed it, "awful queer like and bad," and continued to weep and call upon God for help. She says that she took the revolver to protect herself from Mrs. O. and went out on the street. When she met the woman she says that something seemed to lift her from the ground and a kind sweet voice said to her, "Go tell that woman she has come to meet your husband," and then it seemed as if she were carried off her feet and hardly touched the ground, and as she approached Mrs. O. it did not seem as if she were walking. She returned home, according to her own description, and in a few minutes her son came in and said, "Ma, what made you do it?" She replied, "Do what?" and he said, "Shoot Mrs. O." and she replied, "Is she shot?" and he said "Yes," and she replied, "It is too bad but it can not be helped."

Dr. T. in his testimony called attention to the defendant's rapid change of mood and to her deficient appreciation of the magnitude of her crime. He noted that she showed no disturbance when her victim was described but that she wept bitterly when asked to look at a map showing the scene of the crime. He seemed to have been

impressed with her inferior physical and mental makeup. After the trial the defendant was allowed to go to her home in B. with her husband. So great was the sympathy which she aroused in court that a collection was taken up for her among the men in the court room.

About 1913 the person in question moved to the village of C. with her husband where they bought a small house and lot in a deserted mill-yard on the outskirts of the village. Through her industry and thrift she has repapered the house, painted it inside and furnished it neatly, has improved the yard, made a sidewalk and planted fruit trees and grapevines. Her house shows crude taste, but is orderly and very clean. There are plants in tin cans growing at the window and other attempts at ornamentation. She is evidently the ruling spirit in the household and spends her husband's income with care. Her social relations in the neighborhood are characteristic and interesting. She is on bad terms with almost everybody, and is so high tempered and abusive that she is considered dangerous to associate with. She visits in only one household and these people receive her more on account of fear that she may harm them than because of a desire for her company. The owner of the mill property claims that the houses adjoining are of no value as no one will live near her, several families having moved away in the past four years. She threatened to shoot the man who sold her the property and obtained a hunting license in order that she might have a gun. It is said that people avoid the highway near her house. In the year 1916 she placed a row of boulders through the center of the road saying that they marked the line of her property. The Board of Supervisors protested, and the Town Board sent a committee consisting of the Highway Commissioner, the Supervisor and the Town Clerk to explain that the stones must be removed. She was abusive, threatened to shoot the man who attempted to remove the stones, and told them if they sent anyone to take away the stones they had better send along an ambulance for he would be a dead man. In the autumn of 1916 she was sued for assault by Henry M., a neighbor who had recently obtained a judgment against her because her cow had trespassed. The facts brought out in the hearing showed that she had urged her husband to defend her honor when M., in a drunken condition,

had passed the house calling her uncomplimentary names. Her husband attacked M. and she ran out to assist him and pounded his head with a cobble stone. During the excitement she ran in the house and got her gun and fired two shots. When questioned as to why she did this she said that she had fired at a skunk. In the evidence many facts were brought out in regard to her irrational conduct. It was stated that a pile of lumber valued at \$25.00 had been burned in daylight near her house, and that she had attempted to poison a neighbor's cow by sprinkling poison on the grass. It was also said that upon hearing of the death of Mrs. M. her neighbor she had danced up and down and clapped her hands, and at four o'clock in the morning on the day of her death had opened the window toward her house and played minstrel music on the phonograph. Her conduct at the hearing was excitable and her language profane and obscene. In the summer of 1916 she was found to be secreting some silverware which her grandson had stolen.

In appearance Harriet L. is tall, thin and gaunt. Her hair is gray, her eyes are blue in color and have an anxious expression, her skin is dark and yellowish, and tightly drawn over her sharp features. Her dress is neat and modest and she is clean and orderly about her person.

At the time of the interview she talked rapidly and in a coherent fashion, but her conversation was that of an ignorant, superstitious, excitable and revengeful woman. When questioned about the crime which she had once committed, she showed no remorse or pity, but said that she was glad that she had done it as she had been directed by God. She said that she was not nervous, but delicate and sensitive, and that she could not stand it not to be treated properly. She showed no sympathy or regard for her husband or relatives; said that she might better have left Jim S. years ago, and should have done so except that she was not strong enough to support herself. She is apparently not concerned with moral questions, and has little or no judgment as to right and wrong. She talks much on religious subjects, says that God taught her to read and write, that she learned to read from the Bible, and that she cares to read nothing else. She is not concerned with her grandson's wrongdoing but is interested

in keeping him out of the reformatory. Although he shot and seriously wounded another boy in the summer of 1917, she wants him to come and visit her and practice shooting. Res. C., N. Y.

The fraternity of Harriet L. is known only from her account of it and from the testimony made at the time of her trial. It is as follows:

II-7 ETTA L. married — B. and lives in B. So far as known she is normal and respectable.

II-9 ALVAH L. lives in Canada. Is alcoholic in his habits.

II-10 JESSIE L. is married and lives in Canada.

II-11 SANFORD L. lives in Canada.

II-12 LAVINA L. is married and lives in Canada.

II-16 WILSON L. died young at M., Canada.

II-17 THOMAS L. died from suicide or from taking medicine by mistake. One of the members of this fraternity was insane and died in a public institution and it is assumed that this is the one.

II-18 LIZZIE married — C. and lived in S. She could not be located at the time of the investigation.

II-19 CARRIE L. is married and lives in Canada.

II-20 EMELINE L. died young.

The Father of the above fraternity was:

I-4 THOMAS L. was a hunter who lived near M., Canada. He was alcoholic, getting intoxicated whenever he went to the village. His children all left home when young to support themselves.

The Mother of the above fraternity was:

I-5 CHARLOTTE Y. No information.

I-6 — Y. a sister of Charlotte had climateric insanity and was so violent at times that she had to be restrained.

The Mother:

III-5 JENNIE W. was born along the towpath in S. near S. in 1882. She received her education in the public schools of S., according to her own statement going to the 5th grade. She learned to read and write and to do arithmetic enough for practical purposes, but did not care for school and was not encouraged to go after her mother's death. She went out at domestic service upon leaving school and followed this occupation until her marriage at 20 years of age. Her family considered that she

married beneath her as they thought her husband rough and vulgar, but they made no active opposition, probably owing to the fact that she was living away from home. Although she has lived for a part of her married life in S., her sister Mrs. B. seems to have seen little of her, and visits between them have occurred only a few times each year.

In appearance Jennie W. is of medium height, plump, has regular features, dark hair and eyes. Her speech is clear, she speaks fairly rapidly and with decision and impresses one as of average intelligence. She is neat in her dress and keeps house for her family of five in a manner which, although not first-class, is at least above criticism. Her manners are somewhat crude; she screams at her children in an attempt to make them mind, and boxes their ears upon slight provocation. She is quarrelsome in disposition, possibly from habit owing to her life with James S.; is evidently aggressive and rather glories in tongue-lashing those upon whom she wishes to visit her wrath. She is on bad terms with several of her neighbors and has been in court either as plaintiff or defendant in one lawsuit. Once when the neighbors complained of the noise that she and her children made, she went to the door and called out in a loud voice that she rented her flat, not for the benefit of the neighbors, but for herself and her family. She seems to be rough enough to cope with her brutal husband and has brought about an agreement by which he pays her \$15 a week from his earnings for the purpose of running the house. She does not approve of her husband's habits or his attitude toward his family but she makes no attempt to inspire or exact other conduct. She was not strictly truthful in giving an account of the boy studied and would not admit that he had any serious complaint although she had previously told the boy that he would never amount to anything on account of having "fits." She is able to control the boy by sternness and threats when he is with her but has no influence with him when he is out of her sight. She has not cooperated well with teachers, truant officers or probation officers, showing little stability and much temper. Res. K. Ave., U., N. Y.

The Mother's fraternity:

III-6 ANNIE W. was born in England; is said to have eloped with the son of a noble family in whose service she was working,

and to have gone to Australia. Has not been heard from for over twenty years. Married name unknown.

III-7 JOHN W. was born in S. and has spent the greater part of his life there. He has some education and is a man of temperate habits. He has for years been employed as an assistant foreman in the S. Co. Recently he was transferred to a branch of the company located at W., Canada. He is in good health. Is married and has two children.

III-8 JAMES W. was also born at S. and has always lived there. He is in good health and is temperate in his habits. Has for many years been employed as a policeman by the S. Co. Is married and has five children. One of his daughters is a teacher, two boys are in High School, and two other children are in the grades of the public school. The family lives in a good neighborhood and their home is fairly well kept.

III-9 CHARLES W. was alcoholic and is said to have died as a result of his drinking habits. He was a carpenter by occupation. He married Frances E. an immoral woman and became separated from her.

Descendant

SARAH W. married — C. Address unknown.

*III-10 SARAH W. is a hardy looking, plump woman with dark hair and eyes. She has a well-kept, comfortable home and is evidently industrious and economical. Previous to her marriage she worked at service for several years in one family. Her husband John B. is an agent for an insurance company and makes a fair living. They have six children, the older ones working at more or less skilled trades and the younger ones attending school. The younger children have paper routes and put the money they earn in the bank. The home is to all appearances a good one.

III-11 DAVID W. is employed as a boss in the S. Co. He is married and has a comfortable well-kept home in a good neighborhood. Res. S.

III-12 EDITH W. married and went to live at New C., Pa. According to her sisters she had rheumatism and died of heart trouble at 29 years. She has three children.

III-13 HANNAH ("ANNIE") at one time had a small goitre. She had severe headaches which were cured by glasses. Res. R., Michigan. Married ——— McM.

III-14 WILLIAM W. was born last when his mother was in poor health supposedly from Bright's Disease. He was a "blue baby;" was always delicate and died at 16 years of heart trouble. (Pub. Rec.)

The parents of the family just described were:

II-21 WILLIAM W. was born in Sheffield, England, in 1842. He came to the United States when a young man, and for years was employed as a laborer in the S. Co. He was temperate in his habits and always worked steadily. For sometime he has been living on a pension granted him by the company. He is still in good health and in summer works as a bridge tender. For his second wife he married Carrie ———.

II-22 SARAH T. was also born in Sheffield and came to the United States soon after her marriage. She died when 35 years of age of a low form of fever resembling typhoid and rheumatism. (Pub. Rec.) Her family believe that she also had Bright's Disease.

Convulsions, fainting spells, nervous and mental trouble are denied by this family. All are in fairly good health and capable of maintaining themselves comfortably.

CASE OF WILLIAM S.

Summary

The case of William S. is of especial interest inasmuch as it contains what are probably three unrecognized cases of epilepsy in as many generations. It is well known that epilepsy, especially in the so-called "milder forms" where there is no loss of consciousness or convulsion, usually goes unrecognized not only by the teacher, employer and social worker, but by the physician who is an ordinary practitioner as well. Laymen do not as a rule know that the epileptic mental makeup may be present, with periods of loss of identity or epileptic mania, without loss of consciousness or the convulsing present in the conventional epileptic attack. For example the boy here studied has been considered

nothing less than a "bad" boy, because he was bright looking and active in his play. His attacks have never been witnessed by a physician and are so infrequent and usually so incomplete that they are not recognized as resembling a regular "fit." In his case a well-defined and characteristic aura usually takes the place of the seizure and is often aborted at this point. The boy's paternal half-uncle is an imbecile with convulsive tendencies. It is possible that the abdominal pains without apparent cause which have been observed when he was in the State Hospitals, have been epileptic auras. The weak and amiable personality, subject to periods of excitement and rage, with homicidal tendencies, and the tendency to alcoholism, are characteristic of the epileptic mental makeup. Again the paternal grandmother had "fits" when young, and fainting spells in middle life, with a phenomenon diagnosed as "globus hystericus," a symptom said to be characteristic of the clinacteric which however still persists in this person at the age of 61. These "spells" are accompanied by severe pain and have been variously diagnosed as gall stones, stomach trouble, etc. The description of the attacks bears a resemblance at least to the attacks of the paternal uncle. In the paternal grandmother are present many traits typical of the epileptic mental makeup, the inferior mentality, egocentricity, religiosity with a poorly developed ethical sense, poor memory with occasional lapses, alternating periods of despondency and elation, and the homicidal and suicidal tendencies.

Of the family as a whole, it may be said that with the exception of the imbecile uncle who is known to have been admitted to 10 institutions as many as 17 times, the family is self-supporting. That they border on dependency is shown however by the fact that in several instances the children have been brought up in institutions and the women have fallen into prostitution. What is of more importance in this case is that although self-supporting, they are not as a family law-abiding and in several instances are decidedly dangerous members of society. It is an interesting commentary upon our social systems, especially our courts, that although abnormal they are still held responsible for their acts and allowed their liberty with the possibility that they may commit other and possibly more serious crimes.

CHAPTER 5

THEMES FOR INVESTIGATION

The primary theme for investigation in field work is heredity. The field work done at The Training School, Vineland, N. J., disclosed in a brilliant way the highly hereditary nature of feeble-mindedness. This field work was done on an hypothesis which was quite new and which represented a distinct advance in thought regarding the feeble-minded and their treatment. Quoting from Goddard's "Feeble-mindedness," p. 2:

"This hypothesis may be stated as follows: there are all grades of responsibility, from zero to the highest; or, there are all grades of intelligence from practically none up to that of the genius or the most gifted. Responsibility varies according to the intelligence. Even among those people whom we have usually considered thoroughly normal and responsible, there are environments in which they are responsible and others in which they cannot be so considered. They have intelligence enough to live in certain environments and care for themselves but in a more complex social group it is impossible for them to function properly. As Binet points out, normal intelligence is a relative matter and that which is sufficient for a French peasant out in the country is not sufficient for a Frenchman in Paris. That intelligence which carries a person through life under a simple form of society is insufficient in many of the complex situations of the present day. It is probable that it is this relativity that has disturbed us and led us to go so far without seeing the real issue. In other words the persons who constitute our social problems are of a type that in the past and under simpler environments have seemed responsible and able to function normally, but for whom the present environment has become too complex so that they are no longer responsible for their actions. We have not realized this, so gradual have been the changes that have come over our civilization."

The rediscovery of Mendel's law has also stimulated much study of family histories to learn whether human traits are inherited as are those of the pea, with which Mendel experimented. The

following account of the Mendelian theory is quoted from Bulletin No. 5 of the Eugenics Record Office, by Rosanoff and Orr, entitled "A study of heredity of insanity in the light of the Mendelian theory," pp. 222-224.

THE MENDELIAN THEORY

"The total inheritance of an individual is divisible into unit characters, each of which is, as a general rule, inherited independently of all other characters and may therefore be studied without reference to them.

"The inheritance of any such character is believed to be dependent upon the presence in the germ plasm of a unit of substance called a *determiner*.

"With reference to any given character the condition in an individual may be *dominant* or *recessive*; the character is dominant when, depending upon the presence of its determiner in the germ plasm, it is plainly manifest; and it is recessive when, owing to the lack of its determiner in the germ plasm, it is not present in the individual under consideration.

"The dominant and recessive conditions of a character are designated by the symbols D and R respectively.

"Thus in the case of eye color the brown color is the dominant condition and the blue color is the recessive condition. In other words, the inheritance of brown eyes is due to the presence in the germ plasm of a determiner upon which the formation of brown pigment in the anterior layers of the irides depends, while the inheritance of blue eyes is due to the lack of determiner for brown pigment in the germ plasm, for the blue color of eyes is due merely to the absence of brown pigment, the effect of blue being produced by the choroid coat shining through the opalescent but pigment-free anterior layers of the irides in such cases.

"It is obvious that as regards any character an individual may inherit from both parents — *duplex inheritance*, designated by the symbol DD, — or from one parent only — *simplex inheritance*, designated by the symbol DR, — or he may fail to inherit from either parent — *nulliplex inheritance*, designated by the symbol RR; in the last case the individual will exhibit the recessive condition.

“ We are now in a position to estimate the relative number of each type of offspring according to the theoretical expectation in the case of any combination of mates.

“ There are but six theoretically possible combinations of mates. Continuing to make use of eye color as an instance of a Mendelian character, let us consider in turn each theoretical possibility.

“ 1. Both parents blue-eyed (nulliplex); all the children will be blue-eyed, as may be shown by the following biological formula:

$$RR \times RR = RR$$

“ 2. One parent brown-eyed and simplex (that is to say inheriting the determiner for brown-eye pigment from one grandparent only), the other blue-eyed: one-half of the children will be brown-eyed and simplex and the other half blue-eyed:

$$DR \times RR = DR + RR$$

“ 3. One parent brown-eyed and duplex, the other blue-eyed: all the children will be brown-eyed and simplex:

$$DD \times RR = DR$$

“ 4. Both parents brown-eyed and simplex: one-fourth of the children will be brown-eyed and duplex, one-half will be brown-eyed and simplex, and the remaining one-fourth will be blue-eyed (nulliplex):

$$DR \times DR = DD + 2 DR + RR$$

“ 5. Both parents brown-eyed, one duplex the other simplex: all the children will be brown-eyed, half duplex and half simplex:

$$DD \times DR = DD + DR$$

“ 6. Both parents brown-eyed and duplex: all the children will be brown-eyed and duplex:

$$DD \times DD = DD$$

“ It will be seen from these formulæ that in attempting to predict the various types of offspring that may result from a given mating it is necessary to know not only whether the character is in each parent dominant or recessive, but in the case of the dominant condition also whether it is duplex or simplex.

“ Turning again to the example of eye color, a blue-eyed individual we know to be nulliplex, as he has no brown pigment

in his eyes and therefore could not have inherited the determiner for brown-eye pigment from either parent. But how are we to judge in the case of a brown-eyed person whether he has inherited the determiner for that character from both parents or only from one? We can judge this only by considering the ancestry and offspring of the individual.

“To put the whole matter in a nutshell, the essential difference between the dominant and the recessive conditions of a character lies in the fact that in a case of simplex inheritance the dominant condition is plainly manifest, while the recessive condition is not apparent and can be known to exist only through a study of ancestry and offspring.”

The Bureau has made no contribution to this subject, as none of its data seemed complete enough to warrant the study of Mendelian distribution, and also because we were not convinced that the subjects we were studying, viz. feeble-mindedness and epilepsy, were unit traits to start with. In feeble-minded families our interest centered rather around the feasibility of letting the families continue to propagate and live at large, or the desirability of cutting off the line. We are sufficiently assured that feeble-mindedness runs in families so that the questions of segregation and sterilization are the vital ones.

Multiple defects

It is of interest that no matter with what case one starts, whether feeble-mindedness, sex offense, alcoholism, insanity or what not, the same general undesirable traits crop out in the family history. A recent comparison of 19 family histories of epileptics and 19 histories of feeble-minded, disclosed an underlying nexus of neuropathic heredity in both cases, equally marked, and a very considerable amount of epilepsy in the feeble-minded families, as well as much feeble-mindedness in the epileptic families. Thus the undesirable social traits do not seem to segregate themselves in one family, but all kinds of them are often evident in the same family. The problem then is not a simple one but is complicated and hard to elucidate.

That the complexities of inheritance may not be undervalued the following is taken from Franz Boas' "The mind of primitive man," pp. 85-6.

“ *Ancestors* ”

“ In a large population which is as little stable in its habits as that of modern Europe and modern America, the number of ancestors of a single person increases very rapidly, the number of parents being two; of grandparents, four; of great-grandparents, eight; the theoretical number of ancestors twenty generations back would be over a million, or, more accurately, 1,048,576. Twenty generations represent, according to the rate of increase of modern times, about seven hundred years; according to the rate of increase of older times, about four hundred as a minimum. These figures would apply to the series of generations represented by first-born males; for first-born females the respective numbers would be about five hundred years and three hundred and fifty years, * * * * * Owing to inter-marriages between the same families, large numbers of ancestors will be duplicated in different paternal and maternal lines; and in this way the real ancestry of each individual appears to be much more complex than the purely arithmetical treatment would suggest. The calculation for the ancestor table of the German Emperor, for instance, is instructive. According to O. Lorenz, the numbers of his ancestors in successive generations were as follows:

GENERATION	Theoretical number	Actual number
I	2	2
II	4	4
III	8	8
IV	16	14
V	32	24
VI	64	44
VII	128	74
VIII	256	*116
IX	512	*177
X	1,024	*256
XI	2,048	*342
XII	4,096	*533

* These generations are not completely known. The values here given are the maximum values which would be found provided the unknown individuals had had no loss of ancestors.”

Environment

The subject of environment is closely bound up with the problem, but it is hard to say whether environment is hereditary or not. Persons tend to sink to their level. Some naturally like

a slum. They do not feel contented anywhere else. Whatever in a city life is lowest and toughest is congenial to them. Our studies of environment must be much more extended before an interpretation can be undertaken, but it seems at the present time, that environment is a very considerable factor in delinquency and criminality, if not in other matters of defect. Investigators come to interpret houses in the terms of their occupants, and to trained eyes, certain houses, when seen at a distance, seem just as surely "feeble-minded houses" as do the inhabitants to be feeble-minded persons.

In the opinion of Boas:

"We are led to the conclusion that environment has an important effect upon the anatomical structure and physiological functions of man; and that for this reason differences of type and action between primitive and civilized groups of the same race must be expected. It seems plausible that one of the most potent causes of these modifications must be looked for in the progressive domestication of man incident to the advance of civilization.

Even granting the greatest possible amount of influence to environment, it is readily seen that all the essential traits of man are due primarily to heredity. * * * I am inclined to believe that the influence of environment is of such a character, that, although the same race may assume a different type when removed from one environment to another, it will revert to its old type when replaced in its old environment. This point has not been proved by actual anthropological evidence; but it seems reasonable to make this assumption by analogy with what we know of the behavior of plants and animals."

Early training

Under the head of environment comes the early experience and training of a child and in the light of our studies this seems to be exceedingly important as concerns the child's future life. This matter should be probed into intensively in field work, and if it is found, as seems likely, that the real roots of character are grown before the child is ten years of age, then it will be known where to place the emphasis in bringing up the State's future citizens. Neglect of training for parenthood is one of the most serious neglects in our system of education, for the early training in the home seems to have a very marked influence on the future performance of the individual, and all the methods of later training

can hardly overcome the wrong tendencies which date back almost to the cradle in the child's experience.

Colvin says:

"Any influence in the life history of the individual that serves to modify his behavior, to make it different from what it originally was, may be considered in this general sense educative. * * * The environment always tends to modify behavior, since it varies from time to time, and thus new adjustments are required for satisfactory adaptation; however, it is the environment as consciously determined and controlled that we ordinarily think of when we speak of education. Yet it is well to remember that all environmental influences that tend to modify behavior must be considered as the causes of new adaptations, and hence, in a very true sense, as a means of education. * * *

The modifications of behavior of the individual must be considered as acquired characters and they are in all probability as such purely individual modifications. Hence it follows that the results of education cannot be directly transmitted through physical inheritance and thus cannot become permanent characteristics of the race. Such a transmission would be possible only if these modifications were inborn and not acquired.

The conduct of each individual tends to modify that of others in his immediate environment to a greater or less extent. The entire social group is extremely imitative and suggestible. A leader may profoundly influence the behavior of this group and thus the behavior of countless individuals who are later born in this particular social environment. Many communities manifest for centuries certain attitudes of mind and types of behavior which originally were the characteristics of a few individuals from whom this group traces its origin."

CHAPTER 6₁

TRAITS AND THEIR SYMBOLS

The symbols offered for use in charting by Davenport and Goddard are the following:

A	alcoholic, decidedly intemperate	M	migrainous
B	blind	N	normal
C	criminalistic	Ne	neurotic
D	deaf	P	paralytic
E	epileptic	S	syphilis
F	feeble-minded	Sx	sexually immoral
G	gonorrheal	T	tubercular
I	insane	W	vagrant (tramp, confirmed runaway)

In studies on insanity it is suggested that qualifying lower case letters used singly or in combination, should, whenever possible, be added to the letter I, e. g.

a	alcoholic insanity
d	dementia praecox
g	general paralysis of the insane
m	manic depressive insanity
p	paranoia
s	senile dementia
t	traumatic insanity

In case other traits or causes of death are given on the chart they may be abbreviated as follows:

bd	Bright's disease	en	encephalitis
ca	cancer	go	goitre
cb	childbirth	gp	general paralysis of the insane
ch	chorea	hy	hysteria
cr	cripple	id	ill defined organic disease
df	deformed	kd	kidney disease
dp	dementia praecox	la	locomotor ataxia
dt	delirium tremens	md	manic depressive insanity
dy	dropsy	np	neuropathic condition
ec	eccentricity	obs	obesity

pa	paranoia	sd	senile dementia
pn	pneumonia	su	suicide
sh	shiftlessness	va	varices, varicose veins
sm	simple meningitis	ve	vertigo
sb	softening of brain	x	unknown
sco	scoliosis	?	implies doubt.

The Bureau has used the capital letters as symbols just as outlined above, but has usually written out the other defects on its charts instead of abbreviating them. The authors use an index hand to indicate the individual whose heredity is being studied, but the Bureau has used a hand to indicate all cases which have been inmates of institutions, as the State Board of Charities is interested in public dependency as a whole, and not in the inmates of a single institution.

The symbols as given by Davenport and Goddard are presented in alphabetic order, and they are presented as if of equal importance, and without special interdependence on each other. By analyzing them however, the Bureau has come to feel that some are much more fundamental than others, that some are causes and some effects, so that a tentative arrangement of them was made as follows:

TRAITS

Hereditary	F	N	Ne
Behavior Delinquency	Sx	A	W
			V

Resultants:

Pathological	E	S	I
Social	Pr	C	

With regard to any trait a person may have just enough, too much or too little. A normal person is one who has enough nervous energy to do his work and meet people well, but not enough to be excitable and overactive and overdemonstrative. A person lacking in nervous constitution is dull, phlegmatic, apathetic and mentally stupid. He lacks courage to meet life and never comes up to the mark. A person too active nervously goes all to pieces, is anxious, excitable, high strung, and possibly insane. As all the

traits charted with symbols may be said to take their starting point from intelligence or nervous organization, the symbols chosen for the first line are those which represent normal mentality, defective or lessened mentality, and excessive nervous disposition. The neurotic tendency makes itself felt in many different ways, in physical breakdown and mental and moral peculiarities.

Certain symbols as shown in the second line seem to relate more to behavior than to innate qualities; these are delinquency, sex offense, alcoholism, wanderlust and vagrancy. A person may be born delinquent but it seems more likely that his behavior and environment make him delinquent. Sex offense is the carrying out of a natural instinct in a way that offends the *mores*. Alcoholism is sometimes inherited, but unless a man takes the first drink he will not become a drunkard. Wanderlust is more or less a common trait, but it is inhibited in all persons who conform to the social requirements. Vagrancy is the second stage of truancy, and is a species of wanderlust. The fact that some persons become vagrants is in all probability due to the fact that their first wandering away was not sharply held up, and all men are as lazy as they dare to be. Kipling has said that it is only the necessity of earning our daily bread that keeps us moral.

Given certain natural traits and certain behavior, then certain other things will result. As indicated in line three a neurotic personality which forms the habit of drinking and of sexual excess is in danger of reaping a crop of undesirable mental or physical conditions such as syphilis, insanity or epilepsy. A person may be predisposed to epilepsy or insanity and yet pass his whole life without developing them if he lives in a careful, hygienic manner. Syphilis is the heritage of some few unfortunate infants, but most persons who acquire it are in large measure responsible for their trouble.

The social resultants of poor mentality and bad habits as shown in line four are pauperism and crime. Those who do not form the habit of self-support are usually reduced to begging or stealing before they finish their careers. Crime may be indulged in for sport by some persons, but more often it is the expression of someone's desire to live on the labor of others, to live without work.

The elimination of crime and poverty is the great problem that confronts social reformers. It has been said of late that much of both defects resides in the poor mentality of those who are pauper or criminal. But even given a poor mentality, if a man or woman is trained to habits of industry, and has some job, however humble, that he can perform, there is little need of his becoming pauper or criminal, if other people do what is right by him. In theory it is easy to eradicate hereditary mental defect, but in practice it is difficult. But it is more or less possible to regulate the lives of those who have mental defects, so that they will not fall into the worse evils of crime and acute disease.

CHAPTER 7

FEEBLE-MINDEDNESS

Of late there has been a tendency to call everything which does not square with normal expectation feeble-mindedness, whether it be dullness, business incapacity, moral delinquency, psychopathy, or what not. Feeble-mindedness has been a waste basket term with a wide popularity, like the "constitutional inferiority" of the medical profession. Although some effort has been made to describe the kinds of feeble-mindedness according to the supposed cause, and although one or two forms are so conspicuous that they can be recognized easily, viz., cretinism and Mongolism, it may be said that up to this time there is no adequate classification of feeble-mindedness. To our minds its most simple and fundamental form consists in the inability to comprehend abstractions. Number is an abstraction and the truly feeble-minded person is soon beyond his depth in numbers. By dint of great effort he can learn to read although the printed symbols also stand for abstractions. In hand work as such he is not inferior to the normal mind, but the power of planning his work and guiding it wisely is absent in many cases.

Labor of the feeble-minded

It is often said that the feeble-minded are able to work only under supervision, as if this were a peculiarity and a reproach. But while the feeble-minded are less desirable workers than intelligent people, it must be remembered that it is the usual way for normal wage earners to work under direction. Few persons are so self-sufficient that they either begin anything important, or continue it to its completion without the advice of their fellows. In almost every line, even the most intellectual vocation, the one who does the work is responsible to someone above him, and takes his difficulties to him in search of advice. Work that is to be done absolutely alone is universally unpopular and pity is expressed for those assigned to solitary posts. Other things being equal a person who works better alone than in the company of and under the direction of his fellows is considered queer and undesirable.

Thus the fact that the labor of the feeble-minded is poorer and requires more supervision than that of normal persons proves them different not so much in kind but in degree. It would be advantageous to determine for what occupations the feeble-minded are best adapted, and try to train them for and guide them into these occupations.

Determination of feeble-mindedness in the field

The three recognized grades of feeble-mindedness are the idiot with a mentality up to two years, the imbecile with a mentality of from three to seven years, and the moron with a mentality from eight years up to twelve or possibly fifteen. Mentality is determined by the Binet-Simon measuring scale of intelligence, of which the Bureau is now using the Stanford revision. Mental tests cannot be given satisfactorily without something approximating laboratory conditions. It is quite possible to examine inmates of institutions and members of families who are attending school, but it is difficult and sometimes impossible to give the tests in the home. The tests are more applicable to children than to adults, so that the field worker has at least two classes of persons to rate for mentality whom she cannot test as she can school children, viz., infants and children under school age, and adults.

Mentality of infants

The following points as laid down by Still should be borne in mind when estimating the normality of infants.

“ There are certain points which should suggest imbecility in an infant, apart from the peculiarities of facies which characterize the Mongol and the cretin. The most important of these is failure to acquire certain powers at the proper age. Most infants, when held in the sitting posture, hold the head up quite steadily at the age of four months; if an infant in good physical health fails to do this at the age of six months there is ground for suspecting some mental deficiency. Most infants distinguish their mother or nurse from a stranger quite definitely at the age of six months, often considerably earlier (at three and a half or four months); failure to do so at the age of nine months would indicate mental deficiency unless there were some gross defect of sight.

A healthy infant should be able to sit up without support at the age of nine months; if an infant without rickets or other physical

disease is unable to sit up alone at twelve months, mental deficiency is probable. The age of learning to walk varies very considerably in health, but I think it may be said that if there is no attempt to walk at the age of eighteen months, mental deficiency is at least probable.

The date of speech development is even more variable in health; it may be very imperfect or even absent altogether for as much as two or even three years, without any deficiency of intellect, but as a general rule a child should be attempting to say single words at twelve months, and any considerable delay beyond this age may, when associated with such other evidences as I have mentioned, point to mental defect.

If an infant fails to grasp at objects, particularly at its feeding bottle, when it is nine months old, mental deficiency is highly probable, and similar failure at twelve months old makes mental deficiency almost certain, provided of course that there is no defect of sight."

Defective children

As a child grows older the arrest of development becomes more evident. There is usually marked delay in learning to speak and walk. If there is a tendency to cretinism or Mongolism the thickened skin becomes dry and scaly and the hair dry, coarse and brittle. The nasal bones failing to develop, the nose remains squatty. The voice is husky, hearing and sight are often defective. The teeth are irregular and decay early. In less marked forms of feeble-mindedness the child may appear fairly normal when compared with children younger than himself, and his condition is one of delayed growth and development. When a child is thus retarded he seldom catches up with normal children of his age, but although he may make some progress from year to year he remains always in arrears intellectually. Memory in high-grade defectives is often excellent. As a result of this, as pointed out by Goddard, they often pick up a great deal of language, and learn a great many words, which they use, not intelligently, but as they have heard others use them. The result is that oftentimes they use them with apparent correctness, so that we come to give them credit for understanding what, in reality, they do not comprehend. Also, the feeble-minded do not have creative power, and are unable to adapt themselves to new situations. They probably have an arrest of development previous to the time of the development of association fibres, the functioning of which is essential

to abstract thought. The sensory centers are all developed; the motor centers are developed; a good many connections between these are developed; but that large mass of nerve material which makes up what we call the association centers or association fibres may be in a condition in which it is not functioning. Among the feeble-minded there is not an equal lack of mental capacity in all directions. The perceptive powers, as shown by Norsworthy, are almost two and a half times as strong and accurate as his intellectual powers and almost half as strong again as his power of memory, notwithstanding that he is weaker than ordinary children in all these particulars. As far as intelligence is concerned the feeble-minded do not form a separate species, but simply occupy a position at the extreme of some large distribution, probably approximately that expressed by the normal probability curve.

Norsworthy made the interesting observation that the mouth temperature seems more closely connected with the degree of mental efficiency than with physical health.

With children of school age the mental test is superior to the casual observation of everyday life because it is purposeful and methodical. It studies performance rather than mental content. When a number of children are rated by the same scale there is a good opportunity for comparing them one with another.

Adults

When it comes to rating adults, the final test of living is life itself, and those who support themselves, obey the laws and are not a social menace have a quality which ought to rate them as passable citizens, whether they are intellectually brilliant or not. The main points on which a field diagnosis must be based are the personal history, the social reaction, the quality of work they are capable of performing, and their moral conduct.

The Personal History:—The life history of an individual reveals his ability and his judgment under a variety of circumstances and, further, furnishes the explanation of many phases of his conduct which otherwise might reflect his intelligence unfairly. The positions which one has held, the hard luck and accidents one has had and his conduct under times of especial stress, show the character of the strong-minded as well as the weak-minded. Pos-

sibly the chronological events of a life with the causes and effects, if these were fully known, would be diagnostic material of the greatest value; it is certainly worth while to get as fully as possible the personal history of each member of the family. This covers and includes the other points which are treated separately below.

The School History:—It is sometimes possible to find a former schoolmate or teacher of the subject under inquiry who can recall something of the school progress. Considering that compulsory attendance and uniform school grading have been in force comparatively few years, it is not fair to consider a person feeble-minded on the basis of illiteracy. One point of inquiry is the comparison of the subject with the other members of the class, another is his success with problems in arithmetic and long division. The number sense of the feeble-minded is especially limited, a point in which the characteristics of the child mind persists through life.

It must be kept in mind that the tables and number combinations are memory work for which the high-grade mental defective often has especial ability, while problems call for reasoning which almost without exception is beyond the scope of even the high-grade moron. The combination of processes involved in long division makes it also a test of mentality. Without recourse to school records two commonplaces throw light upon the number sense, the ability to tell time and the ability to make change. Inability to handle such problems when everyday experience makes such ability useful is impressive and information upon the subject is not difficult to obtain.

Community Standing:—The neighborhood estimate of a subject, if rightly interpreted, is often a valuable guide for further questioning. The neighbors have the advantage of long acquaintance, and observation under varying conditions. They also have the background against which the subject stands. If a feeble-minded person has ordinarily good traits the community often establishes a kind of protectorate for him, making allowances for his deficiencies and exaggerating his shrewdness. It must be kept in mind that the informants upon whom the investigator must depend are often of only a slightly higher grade than the family

studied and are rarely discriminating. The common phrase is "Oh! he's smart enough in some ways and in some ways he isn't!" Or "She's an awful careless person." When dealing with such informants it is sometimes possible to get them to grade the different members of the family as to which is the brightest, which the least law-abiding and which the dullest. Next to the country doctor of the old school, who knows his neighborhood, an intelligent and discriminating neighbor is one of the best sources of information possible.

Quality of Work:—The feeble-minded are almost without exception lazy, that is they do not place future welfare ahead of present inclination. On the other hand there are a few who lack judgment in the matter of working and are drudges without adequate recompense. They can often be kept at work when properly managed. Such particulars should be interpreted by the investigator. In one of the almshouses there is an inmate who can be kept chopping wood all day if he is given only a few sticks at a time so that he thinks there is a possibility of soon finishing. If, however, he is put to work at a large wood pile he is discouraged at the prospect and throws down his axe. That characteristic alone grades him as a mental defective. A large proportion of the mentally defective men who are at large find their places as farm laborers. Since there is a large variety of work to be done on the farm, from the delicate adjustment of machinery to the hoeing of potatoes, a particular point of inquiry is the quality of work that the subject can do. To continue plowing after the work is started is possible for him, but to lay off the land and plow the first furrows is beyond his powers.

The moron woman is often found in a home either as a domestic helper, or at the head of a family herself. In domestic service she may be quite a success for she is held up to the standards of her mistress and has little opportunity to be careless and dirty. In her own home the case is quite different and there seems to be a typical feeble-minded housekeeping. In such a house all the evidences of the last meal, including the crumbs on the floor, are usually present unless it is summertime, in which case the chickens may have been in foraging and cleaned up the scraps. The work in the family is never done and washing may be in progress late in

the afternoon. Of furniture there is either too little or too much (judged by the investigator's standards). It is a common occurrence to see a bed or cot piled high with soiled and crumpled clothing, probably the donations of kindly intentioned neighbors, and the spare room, the back shed or the parlor often contains a heterogeneous collection of clothing, boxes and broken furniture. If the family is one of roving disposition these accessories are lost in the frequent movings and the house is bare of furniture. In that case, too, the family records are lost and the investigator must depend upon the unreliable memory of the mother for dates and order of birth. While occasionally the moron mother is neat and keeps her house in order it is an exception, and inquiry may reveal the fact that a relative sometimes comes in and cleans up or that there is someone who insists that some standard be maintained.

Factory work of some kinds seems to be within the power of high-grade defective women, and the grading of ability in that line is a difficult matter. Comparison of her work with that of her associates is sometimes possible. The feeble-minded man who is employed as one of a group is often the butt of all of the jokes. That, however, is not very conclusive diagnostic evidence. The point to be determined is whether the subject can do his work on the same basis as his associates and whether he can meet new requirements in the work without more than an ordinary amount of direction.

Moral conduct:—Moral conduct as a guide to a diagnosis presents many snares. Petty pilfering sometimes accompanies feeble-mindedness and when the subject has a tendency to collect things for which he has no possible use or when he is very stupid in his methods, it may be taken into consideration. Lack of resistance to alcohol is found in the feeble-minded, but is possibly not more marked than in the neuropathic. Indifference to marriage laws is found constantly but the sexual immorality of the feeble-minded is more often the outcome of the circumstances into which they are thrown than to an inherent tendency. Dotted lines and a sunburst of husbands are most impressive upon a chart and have a rightful place in the record since they picture the social standards of the family, but it is doubtful if they throw strong light

upon the degree of intelligence of the subject. It may be that the sex instincts of the feeble-minded woman are no stronger than those of women classed as normal, but normal women have a large range of other interests which more or less overshadow the sex interests. Incendiarism is found most often in the lower grades of male morons. Unreasoning revenge, the desire to get even, is a trait which accompanies mental defectiveness. On the other hand extreme religiosity may be just as indicative of the undeveloped intelligence as a court record. Persons of intelligence are able to use a certain amount of judgment and shrewdness in their iniquities and virtues which differentiate them from the mentally defective.

Summary:—Were it possible for the investigator to get full information on every point in regard to each member of the family under investigation it would be feasible to work out a system of points and obtain a rough mental quotient, but this is seldom possible. Geographical distribution complicates field work immensely. The task of the investigator is to obtain every scrap of information possible, then to gather and classify the points, considering them in connection with the environment and training. The investigator is in a better position to value his information than the reader of the report and it is desirable for him to make the most accurate diagnosis he is able or at least a tentative one, presenting the points upon which the diagnosis is made. If further experience or future events disprove the diagnosis, at least the information upon which it is based should stand up under the most searching scrutiny. Our theories may be wrong, but the facts underlying them should be indisputable. For that reason it is desirable to present as much material as possible which is independent of the personal opinion of the investigator. The interpretation of these facts calls for all the understanding and judgment of the investigator, and it is upon the interpretation that the value of the work rests.

Intellectuality not indispensable

Although qualities of mind are held to be supreme by some arbiters in rating the value of persons' citizenship, it may be found in the course of time that if a few persons can think constructively

and these are placed at the top of our government and industries, we can get along with a considerable number of citizens who have no power of independent thought. In common labor and plain living the qualities which are most essential are industry and a placid temperament. Human kindness and tact are often of more account than the ability to do long division. That which is called the soul can be considerably developed even in the absence of the ability to reason out lines of conduct. Almost no one, whether normal or subnormal, originates anything, either in the line of conduct or ideas. As Angell has said:

“Undoubtedly there is an insistent popular tendency to overestimate the daily intellectual accomplishments of the average civilized man. Few persons appreciate how completely most of us are creatures of habits, and how infrequently any of us are guilty of processes which could, by any remote stretch of veracity, be regarded as those of abstruse reasoning. We think in concrete and often ineffective ways. It takes us a long time to solve a very simple problem, and the solution when gained is often of a more or less accidental character.”

Habit formation

We do not have to think out our theology, our ethics, our manners, styles, food combinations, or pleasures. The experience of the race is back of us in all these matters, and long before we have reached years of discretion, we have established firm habits of conduct and behavior. Habit formation is the most important of all matters in dealing with the feeble-minded and in rating their performance. In speaking of habit formation Colvin says:

“ * * * These acquired modes of behavior are gradually set up and when perfected are known as habits. * * * Habit is the result of education, while instinct and diffuse activity lie at the basis of learning. Effective action is in a large degree based on the formation of a large number of useful habits. This is particularly true of all those individuals who are incapable in any large measure of controlling their behavior by intelligent direction. Thus the problem of educating subnormal classes is mainly that of proper habit formation.”

Angell says:

“Thus it appears that the automatized control over the muscular coordinations, which we call habit, is an indispensable incident in the realization of our decisions.

“It only remains to add that an inspection of all the relevant facts leads to the conviction that in a true sense our entire volitional activity consists in the building up of more and more inclusive habits.”

Kirkpatrick says:

“Health is favored and the basis of a sound mental life is provided by establishing a good set of habits, not only as regards regularity in eating and sleeping, playing and resting, but as regards the way in which he shall respond to whatever is being done for or with him.”

If a person conforms to the standards set by his class of society he is an average member of the race. Obviously the best thing to do with a person who has less than average mental stability is to guide him, if possible, into the habit of conforming, of doing as other people do, and this will keep him well within the bounds of law and order, even though he cannot think out the why and wherefore of his line of conduct. Habits are just as strong in the subnormal, for aught we know, as in the normal, and when a right habit is thoroughly formed, the person will find it difficult to break it, even though he has a motive to do so.

The feeble-minded as citizens

The following analysis of community life was made with a view to seeing what part the feeble-minded can be expected to play in it.

Subdivision	Concerned with	A test of
1. PUBLIC INSTITUTIONS	Government (Law)	Leadership requiring constructive intelligence and largeness of view
General welfare	School (Teaching)	
	Hospital (Medicine)	
	Church (Ministers)	
2. HOMES	Family relations	Character and etiquette
Sustenance and refinement	Houses, grounds, property	Parenthood
	Food, clothing	Discipline of children
	Family animals	Management of income and home
		Natural disposition
		Kindness
		Taste
3. OCCUPATION	Work	Judgment
	Study	Brains
	Sports (golf, etc.)	Worry
		Discontent
		Fractiousness

Subdivision	Concerned with	A test of
4. ENTERTAIN- MENT	Moving pictures	Self control
	Love-making	Wit
	Saloons	Sociability
	Dancing	Sex revery
	Theater	Wool gathering
	Games	
	Conversation	
	Gossip and news	
	Banter	
	Story telling	
	Discussion	
	Mere loafing	

When the possibilities of the feeble-minded are considered it seems that for them to be entertained is easy, to be employed is possible, to make decent homes difficult, to run the government impossible.

Some one has said:

“Perhaps degrees of intelligence may be marked by the distance ahead one is able to see and plan for his own happiness and welfare. If so, then we discover that the feeble-minded, so-called, are those who are unable to see even a short distance into the future, and consequently will destroy present conditions if they are unpleasant, even though they are the foundation of happiness in the future.”

CHAPTER 8

NEUROTIC SYMPTOMS

In the study of pauperism and criminality the discovery of neurotic traits has fully as much bearing upon the subject as has feeble-mindedness. Abnormality of conduct in the normal as well as in the feeble-minded may often be explained by the presence of an abnormal nervous system. A distinction should be made between the term neurotic which means an indication of abnormal nervous reaction, and neuropathic which is a stronger term and applied to the symptoms of a recognized nervous disease. Even if medically trained one must judge of an abnormal nervous makeup largely by conduct. In field work, therefore, neurotic is a general term which pertains to those who are unable to stand the storm and stress of the ordinary events of life without undue consideration for their health and feelings.

Neurotic conditions may be exhibited in (a) the physical makeup, and (b) in the conduct. Of the physical symptoms a distinction should be made between those of organic nervous diseases which are fixed, and the symptoms of neurasthenia and allied states which are fleeting. The characteristics of a nervous diathesis according to Beard* are: fine soft skin, delicately cut features, and tapering extremities. Such persons are not coarse or gross and usually look young. They often have the appearance of perfect health and consequently have little sympathy. In neurasthenia the symptoms are marked by periodicity, are subtle, illusory and difficult of analysis. They are likely to leave their impress upon every organ in the body; there is the neurasthenic eye, stomach, etc. There is the "neurasthenic voice" which is characterized by want of courage and clearness. In this condition, as Emerson says, "The voice is a delicate index of the soul."

Physical Symptoms

Among the purely physical symptoms may be tenderness of the scalp or of any part of the body, spinal irritation, blushing, sweating of the palms, insomnia, in which the mind is overactive,

○ (*) G. M. Beard — "Nervous Diseases."

drowsiness, anaemia, lack of normal thirst, abnormalities in the secretions, moistening of the eyes, dryness of the skin, tremulous pulse, irritable heart, local spasms, convulsive movements, difficulty in swallowing, cramps, idiosyncracies for certain foods, localized peripheral numbness, temporary paralysis, sensitiveness to changes in the weather or temperature, and impotence either partial or absolute. In women irritabilities of the genital organs may be analogous to spinal or cerebral irritation. In almost any case of long standing nervous exhaustion, the reproductive system necessarily participates sooner or later either as cause or effect or both.

Phobias

Morbid fears or phobias are common among the neurotic and the neuropathic. They are not forms of mania, and differ from the fears of normal, healthy individuals chiefly in degree. Those affected by them are entirely without self-control and behave like infants in the presence of the particular fear which concerns them. The following which are the result in whole or in part of disorders of the nervous system are frequently recognized: fear of crowds, fear of being alone, fear of open places or of closed places, fear of lightning, of disease or contamination.

Hypochondria

One of the commonest indications of an abnormal nervous makeup is hypochondria, a frequent feeling of malaise, or of invalidism. This condition is often chronic and can be treated only by some imagined cure, by new absorbing interests or by the person thoroughly understanding his own case. Mental irritability, fretfulness and the minding of petty annoyances is also characteristic of this condition. A feeling of hopelessness is characteristic of functional nervous disorders. In organic, structural or incurable disease there is often a feeling of inadequacy. A certain amount of nervous strength is necessary for simple existence, and "abstaining from dying," as Beard says, requires a certain amount of force. The nervously exhausted individual is either constantly or intermittently unequal to the task of living.

He can not trust himself half an hour in advance, in the midst of labor his strength may give out, for his narrow margin of muscular and nervous force is likely to be soon exhausted. Another condition frequently met with has been described as the "going to die feeling."

Lack of self-control

In addition to the conditions stated above, the most common symptom of an abnormal nervous condition as met in the field is exhibited in lack of self-control as shown in action and in speech. The neurotic are frequently scatter-brained when subjected to excitement. For this reason they can not successfully occupy positions where they are subjected to the stress of an emergency. The women so affected make poor housekeepers as they are not likely to distinguish between the important and the unimportant, and are either disorderly or painfully neat. They make poor mothers because they are fretful, lacking in self-control and likely to inspire their children with fear or morbid ideas. They are inconsiderate of others and unlikely to create a serene home atmosphere. Neurasthenic men in business are likely to be mincing in details, and given up entirely to carrying out their own elaborate plans and systems. They seldom have the vision to launch big schemes or the power to carry them out. They frequently have a poorly balanced ego, being alternately conscious of their ability, or suffering from lack of self-appreciation. Their work is at times brilliant, and at other times is below average in both quantity and quality. Their output is entirely beyond their control. As a rule they are unsuccessful in dealing with people, being sensitive, over-scrupulous, and uncertain of their relations with others. They are alternately aggressive and defensive; give much thought to their own personality, and make frequent assaults upon the personality of others. They are on the lookout for injuries and often transfer a fancied wrong to another person or situation. If they are in a position of power they are likely to become self-centered and autocratic, or on the contrary to become quite lacking in self-assertion. They are often unreasonable and high tempered and make great demands for their personal comfort. The last named characteristic is associated with hypochondria, with the feeling of inadequacy and the uneven supply of nerve force.

CHAPTER 9, EPILEPSY

Epilepsy is an extremely interesting subject for field work because its cause is not known, and it seems closely related to many other forms of mental and physical defect, as feeble-mindedness, insanity, neuroticism, temper, crime and sex offence. The direct inheritance of epilepsy is not so striking as the direct inheritance of feeble-mindedness, but the disorder seems to develop on a neurotic soil.

The relation of epilepsy to infantile convulsions is not fully understood. The following notes from Sachs on the subject of convulsions throw some light on the condition.

Convulsions

“Eclampsia infantum. The peculiar seizures so common in infancy, and designated as convulsions, constitute a symptom, not a form, of disease. The unusual frequency of convulsions in early childhood points to the greater excitability in the child of the motor mechanism of the brain. The motor centres in the cortex are more apt to “discharge,” and the inhibitory power of the brain is less developed than in the adult.

Convulsions always denote cerebral (cortical) irritation.

Convulsions occurring within the first few days of life are, as a rule, the result of meningeal hemorrhage, due either to protracted labor, or to instrumental delivery. If the child survives, the injury done to the brain often leads to the development of:

I. Spastic palsies.

II. The convulsions may be due to organic disease of the brain, such as tumor, abscess, meningitis, or vascular lesions; in all of these cases, they may be the earliest symptoms of the disease, but other symptoms associated with them, such as headache, paralysis, optic neuritis, and the like, will be forthcoming.

III. They may mark the onset of any acute infectious disease. The initial convulsion in children may have the same value as the initial rigor in the adult. The former, with or without fever, is the clinical equivalent of the latter. It is common at the onset of pneumonia, scarlet fever and measles; and I have also witnessed convulsions in malarial fevers, and at the onset of chicken-pox.

IV. The convulsions may be of reflex origin. Almost every possible peripheral disturbance has been supposed by one author or the other to be a sufficient cause of convulsions. Of the influence of two conditions there can be no reasonable doubt. The first of these is dentition; the second, gastro-intestinal irritation.

V. Convulsions may be due to poisons (organic or metallic) circulating in the blood. Under this heading we may include the convulsions of uraemia, lead, etc.

VI, Convulsions may result from severe loss of blood, from any exhausting disease, or from such constitutional disturbances as scrofula and rickets. * * * * Whatever theory one may be willing to adopt in order to explain the close relationship between rickets and convulsions, the fact remains, that an enormous percentage of children having convulsions are affected with rickets.

VII. A convulsion may be idiopathic, hereditary or, if you choose, the first incident in the course of an ordinary epilepsy.

Hereditary syphilis does not play an important part in the etiology of prenatal palsies. The fact that syphilis of the parents so frequently leads to stillbirths may account in a measure for the small part played by this special affection in these diseases.

The etiology of birth palsies is a very simple one. It is surprising to note how much pressure the brain and skull will tolerate without injury, but it is natural that harm should occasionally be done. Asphyxia at birth has since Little's day been considered a most potent factor. My own studies in this matter which were based upon a very careful collection of statistics, have proved that tedious labor is a more frequent and a more disastrous factor than instrumental delivery.

The distinction between organic and idiopathic epilepsy can easily be made if we simply call to mind that organic epilepsies are, as a rule, partial, if not unilateral. Idiopathic epilepsies are invariably bilateral or general in their manifestations.

Partial or unilateral manifestations often become general during the attack. Under the head of organic epilepsies we must include post-hemiplegic epilepsy. This form comes on with deplorable frequency after the paralytic attacks in early life. However slight existing traces of such an early hemiplegia may

be, if it can be shown that the epilepsy was developed after the onset of the hemiplegia there is good reason to suppose that both the paralysis and the epilepsy are due to the same organic lesion. I consider it a safe rule in epilepsy beginning in childhood to examine particularly for exaggeration of the reflexes; and an increase of the reflexes in one half of the body is quite as safe a sign of a preceding hemiplegia as a marked paralysis with contracture would be."

According to Clark about 70 per cent. of all cerebral palsies of children develop epilepsy in later life, from three to twenty years after the original lesion is established.

Kinds of epilepsy

The various stages of the epileptic seizure are the aura, or warning, the tonic stage, the clonic stage, the period of stertorous breathing and the sleep following the attack. Status is the climax of epilepsy in which the patient goes from one seizure to another often without recovering consciousness. The main forms of epilepsy are Grand Mal, in which consciousness is nearly always lost and motor coordination is entirely destroyed for the time being; Jacksonian epilepsy in which convulsive movements are confined to a group of muscles and in which consciousness is not as a rule lost; Petit Mal a short seizure with loss or impairment of consciousness but with little evidence of motor convulsion; psychic epilepsy, a temporary mental aberration.

Possible connection of epilepsy with ductless gland activity

The onset of epilepsy comes usually at the time of the greatest development of the thymus gland, that is, before or during puberty. The menstruation of epileptics is late and irregular. Pregnancy affects the seizures,—sometimes they cease. These facts indicate some connection between epilepsy and the sex glands. Stern found that two-thirds of the cured cases of epilepsy were distinguished by enlargement of the thyroid gland, and concluded that thyroidism is antagonistic to epilepsy. Dana believes that vasomotor seizures, involving especially the vasomotor centers, occur in neurasthenic persons, particularly perhaps those having some degrees of thyroidism, with the characteristic symptoms of

violent beating of the heart, flushed face, or a violent throbbing or fullness of the head, and accompanied by anxiety or fear. Paris observed the infrequency of goiter among epileptics in those regions where goiter is most prevalent. Paris's theory of the relation of the development of the thyroid body to epilepsy is that epilepsy is the expression of a disproportion between the original constitution of the sensibility and impressibility of the encephalic nervous centers and their habitual stimulants emanating from the glandular organs, which assume the continuity and the fixity of the species, that is, reproduction and the regular individual development; viz., the ovaries and testicles which not only assure reproduction by the association of their secretions, but which, by a certain exciting action upon the nervous centers, in some sort complementary to the function of the thyroid gland, excite to reproduction. It is evidently the special function of the thyroid body to preserve that stimulation of the nervous centers, which presides at our regular development, for the maintenance and coordination of the functional activity of our organs. If the functional activity of these glands be too great, or elimination is insufficient, so that the accumulation of their products is abnormal, with consequent excitation of the nervous system, the results will be epileptic manifestations, if these nerve centers have the especial impressibility of what may be called an "epileptic constitution." If the origin of epilepsy can be thus explained, the cure of this condition will soon be among therapeutic possibilities.

There is a marked antithesis between cretinism and epilepsy. Epilepsy usually arises when the glands of internal secretion and the genital organs have acquired a relatively intense functional activity. Among the alleged causes of epilepsy are diabetes, dystrophia adiposo-genitalis, hydrocephalus internus, tumor of hypophysis, nephritis, porencephalus, sclerosis, several of which are connected with disorders of the ductless glands. Rheumatism is often accompanied by epilepsy, and tuberculosis is a frequent cause of death of epileptics. Puberty, pregnancy or any crisis may make increased demands on all the ductless glands and thus unmask a latent insufficiency.

Stigmata of epilepsy

The stigmata of epilepsy may lie in the way of excesses or arrests of development. Epilepsy is a morphological disease and occurs in defective organisms, whose evolution is incomplete or aberrant. The metabolism is not normal, toxic substances are formed and retained.

The epileptic facies has a broad forehead, broad and flattened nose, narrow and high palate, prognathism, thick lips, staring eyes with wide pupils. There are meningeal and osseous thickenings, exostoses, vascular dilation, sclerosis, cerebral atrophy and hypertrophy. The blood, sweat, urine and gastric contents are hypertoxic before, during and after a seizure, hypotoxic in between whiles. After an attack Loewe found increased elimination of phosphorus and a reduction of temperature. Epileptics have constipation, seem to suffer from poisoning of the system, have sluggish minds, small vocabulary, mental deterioration, plateau speech, an unhappy disposition, headache, voracious appetite, need a meatless diet and good baths.

In field work in epilepsy it is well to question for all sorts of nervous symptoms, as there is usually a high degree of neuroticism. The social behavior of epileptics and their families is often odd, due to their high temper and offishness. Hence their social reaction should always be learned. The following is rather a typical social reaction:

Lena R., admitted to Craig Colony for Epileptics in 1908, is said to be very irritable and frequently bites and strikes herself. Her twin brother was troubled in school almost daily by falling asleep, a case of narcolepsy. Her mother was an epileptic, who was easily provoked and inclined to be sulky. Her mother's brother also is high-tempered and hard to get along with. Another brother of her mother is a traveling salesman, but is inclined to be aloof, is not a good mixer, and uninclined to be sociable or congenial. Is quick-tempered and hard to get along with. The third brother of the mother is mentally defective and epileptic, is usually good-natured, but occasionally violent and at times has suicidal tendencies. He at one time declared that he had killed a neighbor, and at another time excited the people in the neighborhood by saying that he had killed and buried eight men under a certain tree. The maternal grandfather was eccentric, had a

sulky disposition and was selfish and inconsiderate toward his wife and family. He was unusually religious, was given to Sunday observance and to preaching to others but was not ethical in his own conduct. He was always talking about "goin' to meetin'" as he called it; would not go visiting or shave himself on Sunday and was very self-righteous although he would do mean underhanded things on the sly. He was miserly in his habits; did not provide the decencies of life for his wife and children, but supported a child in China through some missionary society. A relative tells a story to the effect that he once became angry because all the children in the family were girls and took his dog and went to sleep in the barn. His second wife left him because of his penurious habits. As he became older he lived in filthy surroundings and neglected his person. Toward the end of his life he became mischievous and used to go out in the yard and kill his daughter-in-law's plants. A brother of the maternal grandfather was said to be "the biggest liar in seven states." Most of his untruthfulness took the form of bragging in regard to things he had done or was going to do.

Need of hypothesis

The Bureau is of opinion that it is best in field work to study a special topic and not to gather general information without definite aim. As a result of two years of field work in epilepsy it is observed that there is some relation between epilepsy and ductless gland activity, and the Bureau has set itself the problem of looking further into this matter during its next period of field work. After examining the family histories for all indications of such a relationship, and after extensive reading in recent medical literature, the following hypothesis was built up, as one to work on during the following year. It may prove to be entirely fallacious and have to be thrown onto the junk heap, but we hold that it is better to work with an hypothesis than without one. The investigator must of course maintain an open mind on the subject and not become wedded to the hypothesis, but she must make every effort to gain all the information that will throw light upon it. Method in field work requires that generalizations should be made from each series of family studies, and that these generalizations should point the way to a new hypothesis which it is then the duty

of the field worker further to examine and gather other data to establish its truth or to disprove it. In offering the following hypothesis in epilepsy we simply exemplify the Bureau's method and can say nothing at the present time as to its value.

Hypothesis of Bureau as to relation of the ductless glandular system to epilepsy .

The ductless glands, working in concert, affect bodily growth and metabolism.

- I. Epileptics have certain marked bodily characteristics as
 - a. Voice, harsh and monotonous.
 - b. Facies, with high forehead, prognathism, staring eyes, which speaks of glandular disorder.
 - c. Abundant hair. Hair growth is controlled by ductless glands.
 - d. Excessive libido, indicating hyperfunction of sex glands.
- II. Epileptics have a disturbed metabolism as shown by
 - a. Voracious appetite, body seeking something that it needs and cannot get enough of.
 - b. Intolerance of meats, i. e., of proteins.
 - c. Constipation, poor elimination.
 - d. Headache.
 - e. Unhappy disposition, due to physical malaise.

Among the glands affected in epilepsy may be

1. Thyroid, because goiters and many thyroid disturbances are found in the families of epileptics.
2. Parathyroid, because feeding of thyroid and parathyroid extracts were found beneficial by Bolten.
8. Hypophysis, because of prognathism in epileptics.
4. Thymus, because often found enlarged in autopsies of epileptics.

An argument for supposing the convulsions of epilepsy to be due to glandular disorder is that all the spasms of the body are related more or less closely to this system, as

1. Tetany, a calcium disorder of the parathyroids.
2. Spasm, due to hyperthyroidism.

3. Eclampsia, puerperal, connected with glands of generation.
4. Uremic convulsion, due to faulty metabolism of carbohydrates as regulated by the chromaffin tissue of the suprarenals, and the pancreas.
5. Spasmophilia, due to unusual lymph conditions, which are regulated by the thymus gland, and chromaffin tissue.
6. Epileptiform convulsions of Addison's disease, due to hypofunction of the suprarenals.

If epilepsy is a disease of the central nervous system it stands apart, then, from all other convulsive phenomena. By this hypothesis, epilepsy is due to chemical and not primarily to nervous conditions. Epilepsies due to brain lesion and Jacksonian cases are not to be explained by this hypothesis.

Several conditions are reported to be seldom seen in epileptics, that is, are antagonistic to epilepsy, viz.:

1. Goiter (but often found in the families of epileptics.)
2. Cancer (but often found in the families of epileptics.)
3. Infrequency of bed sores or infection of open wounds.

These matters require further study to learn why they are antagonistic to epilepsy.

Other matters which require further research are:

1. Rheumatism, which frequently occurs in the families of epileptics.

Acute articular rheumatism often precedes thyroid disease, and pains in the bones and muscles are a constant factor in what is called moderate hypothyroidism.

2. Rickets, a disease of growth and metabolism, which has something to do with tetany and calcium metabolism, due to dysfunction of the parathyroid glands.

Relation of the hypothesis to older hypotheses

With regard to the theory that epilepsy is due to the poison of infectious diseases, quinsy, typhoid and scarlet fever have been observed to precede immediately an attack of exophthalmic goiter, and influenza, malaria, angina and the puerperal disorders may lead to a temporary attack of severe inflammation of the thyroid gland. It is conceivable that a ductless glandular system, not

otherwise predisposed to cause convulsions, can be weakened into that condition by the poisons of infectious diseases.

Epilepsy has been considered a disorder of the sympathetic nervous system. But this system is closely bound up with the ductless glands.

Exophthalmic goiter can be caused by shock, so it is conceivable that other glandular disorders can be set up by trauma or other shock, even when the brain cells are not affected.

Heredity. In our family histories there is as much or more indication of hereditary transmission of ductless glandular disorders as of transmission of epilepsy. In all cases of inherited epilepsy there was some dysfunction of the thyroid in the family.

Zone hypothesis. As the ductless glands pour their contents directly into the blood system, and as some of the glands are situated close to the central nervous system, it may be that the ductless glands furnish the stimuli which set up the irritation in the zone.

Affect. L. P. Clark's hypothesis of a desire of the epileptic to return to prenatal condition of dependence, may be explained as a dysfunction of the sex glands, which along with the other glands are disturbed in epilepsy.

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CHAPTER 10

INSANITY

“Mental disorders,” according to Rosanoff, “arrange themselves in two fundamental categories, characterized respectively by *insufficiency* and *perversion* of the intellectual or moral faculties.

“Insufficiency may be either *congenital* or *acquired*. In the first case it constitutes arrest of development; in the second psychic paralysis. When the psychic paralysis is temporary, causing a suspension, but not a destruction, of mental activity, the name psychic inhibition is applied to it; on the other hand, when it is permanently established, it constitutes mental enfeeblement or dementia.

“Perversion of the intellectual and moral faculties may also be *congenital* or *acquired*. Various terms are applied to its manifestations, depending upon the particular function affected: hallucinations, delusions, morbid impulses, etc.”

The most important causes of mental diseases are heredity, alcoholism, syphilis and head injuries. The most important mental disorders which are supposed to develop on a hereditary basis are arrests of development, epileptic psychoses, constitutional psychopathic states, dementia praecox, paranoia, manic-depressive psychoses, involutional melancholia, and allied conditions which constitute nearly one-half of all cases of insanity.

Quoting at length from the paper on “Fortifying the child against mental disease,” read by Miss Jessie Taft before the meeting of the Capital District Conference of Carities and Correction in April, 1917:

“From the standpoint of causes, mental diseases can be divided, generally speaking, into two groups. The first group contains all those diseases which attack the brain and nervous system directly. Under this heading come general paralysis, or paresis, a very frightful insanity — always fatal, and always caused by syphilis, acquired or inherited. Not all syphilitic persons develop paresis but all who do develop it, have the syphilitic germ in their systems. This disease is responsible for from 15 to 20 per cent of all men in hospitals for the insane and for from 8 to 10 per cent of women. This disease is preventable but not curable.

“Alcoholic psychoses come next in importance. Not only does steady or immoderate use of alcohol account for from 15 to 20 per cent of inmates of hospitals for the insane but it is also an agent in bringing on other diseases in persons predisposed to them. Alcoholic insanities too are preventable.

“Then come diseased conditions brought on by use of drugs such as cocaine and morphine, the deliria of fevers, exhaustion psychoses, arterio-sclerosis — a disease of the blood vessels, and senile dementia — a wasting of brain tissue. The diseases in this first group are mental because the mind is affected, but the cause is physical — a sick brain or nervous system.

“The crucial point is reached when we approach the second group of this classification which includes dementia praecox, paranoia, manic-depressive insanity, melancholia and allied diseases. Here there are no known external causes. Their essential character is mental not physical. Both symptoms and causes are chiefly psychic. They form the grèat bulk of chronic cases in the hospitals for the insane, as well as a large body of milder mental conditions, which may never reach the hospital. With them the great hope of cure or prevention lies on the mental side. Here we have not a brain disease with a definite cause which can be pinned down and labeled. Nervous tissues seem not to be involved in any essential way. Here we are dealing with mental forces and mental effects and it is to psychology we must look if we are to find any way of controlling these causes.

“Heredity has been held to be the great cause of these forms of mental disease and until recently to such an extent that escape was considered impossible. The victim literally inherited his father's mental disease just as he inherited the color of his eyes. Our outlook is no longer as black as that. Modern authorities quite generally accept the more reasonable view that no mental disease is directly inherited. What is inherited is a trait or tendency which, as in the case of tuberculosis, may or may not cause insanity to develop according to conditions supplied by the environment. It is possible to conceive of an inheritance so unfavorable as to make escape very improbable, but it is also possible to conceive of an individual only slightly handicapped who

could be overwhelmed by a peculiarly unfavorable environment or saved by a favorable one.

"As far as the second group of internally caused insanities is concerned, the mental hygiene movement is based on the theory that there are no external causes, not even heredity in any absolute external way, but that these diseases grow out of the very character and personality of the individual who develops them. They are the logical result of unfortunate habits and unsuccessful ways of adapting to life which were forming from early childhood. Certain traits have flourished at the expense of others, tendencies that should have been checked or offset in some way, have never been corrected. The result is a mind so badly balanced as to be unfit for meeting the ordinary difficulties of existence.

"This you see at once associates the mind of the insane with ordinary everyday psychology. The sick mind started out with the same set of instincts, feelings and emotions as the healthy mind but got them so tangled up in its efforts to meet life's difficulties that it could not use them effectively. We all know that mental traits are subject to modification, to improvement or to deterioration. We know that habits can be determined to a large extent; that they can be formed for good or bad results, or, once formed, can be altered, especially in the young. This same psychology applies equally well to the mind that may some day develop mental disease. When this mind is very young and its unfortunate traits are just beginning to show, there is the possibility of modifying those traits through training, of helping the child to form better habits, and of devising ways to counterbalance the overdeveloped instincts or tendencies by cultivation of others. You see, therefore, as soon as you accept this view of mental disease, the great possibility of prevention rests at once upon those who have charge of children — when the habit reactions are being fixed and traits and tendencies directed one way or another.

"I realize that you are thinking all this is vague and wondering just what is meant by an unhealthy mind and what criterion can be used to determine anything so relative as mental health or disease.

"In attempting to find such a criterion in the past, we have first turned to the content of mind and attempted to find the distinction

between healthy and unhealthy through some particular content, present in one and absent in the other. That basis of distinction was very unsatisfactory for no content could be discovered at any one time in a diseased mind that could not also be proved to be present at some time or other in a perfectly well mind. Strange ideas, desire for death, feelings of revenge, jealousy, suspicion, hatred, obsessions, fixed ideas, can all be found at various times in any mind. To get a working criterion one has to abandon the analysis of static content, and consider mind in action. If you can determine what the function of mind is, then you have a measure for deciding whether or not it is fulfilling this function—whether it is working properly. Lungs that fail to bring sufficient oxygen into the blood are sick lungs; a heart that fails to pump blood to all parts of the body is diseased. Likewise a mind which fails to fulfil its function, is to that extent not in a normal healthy condition.

“When we try to specify the function of mind, we are likely to think of it, especially in its intellectual aspect, as an end in itself—something of absolute value for which other things are means. Biologically, however, it isn't quite that way. The part of us which thinks, which devises ways and means of dealing with things around us for our safety and advancement, seems to have been evolved as the best way yet discovered of preserving the life of a complex organism. From this standpoint, this intellect of ours is primarily a means of keeping us alive, of adapting us to the difficulties and dangers in the environment, both social and physical. The all-important and controlling element which it serves is the will to live—the life force, the vital energy which uses mind as an instrument for its own preservation. The fundamental purpose of mind, then, is to find the best ways of adjusting us as willing, feeling beings to a universe which is often unfavorable. If this be true, the criterion for a healthy, normal mind would be the extent to which it actually succeeded in adapting itself to conditions, either by changing them or by altering its own demands, or both. Take such a simple act as the crossing of a street when a street car is approaching. The ordinary mind would at once take in the facts of the situation and either wait for

the car to pass, or gauge the distance and cross ahead of the car. That would be successful adaptation. Unsuccessful adaptation would be to refuse to cross the street at all; i. e., not to deal with the situation — to run away from reality, or to be struck down by the car in crossing. Such adjustments are on a comparatively simple physical level and would be easily met unless a mind is very defective or very abnormal. In our age when civilization has become so very intricate and complex, the crucial adjustments come in attempts to meet social situations. Each individual is born with absolutely primitive instincts and desires. These must be satisfied in a complex social order with all its restrictions and limitations of individual freedom. Every mind has for its great task, the adaptation of its emotional and instinctive needs to the life of the group. Raw egotistic desires and undisciplined social feelings, must be worked up into forms that are useful to society and still satisfying to the individual. This is the tremendous work of mind and when we consider how difficult it is, is it any wonder that many, many minds find life too much for them and run away from hard facts to a world of their own where life is simple enough to be endured.

“Can you not see from this that mental health and mental disease, normality and abnormality are purely relative terms? Can you not see that no human being entirely escapes at least that fringe of mental disease, since adaptation is never perfect, and there are times of stress when any mind, however stable, attempts to flee from the real. The degree to which we are brave and frank in our facing of difficult conditions and the degree to which we finally succeed in adapting ourselves to complex situations, depends on our natural endowment — our inheritance, on our training and on the circumstances which fate puts into our lives. This means the existence of minds of all degrees of stability, shading off from the entirely insane to the so-called normal.”

Miss Taft's paper represents the modern theory of mental hygiene, a theory which every field worker should thoroughly comprehend, for it will help her to analyze the reactions of the persons whom she studies, who are in many cases on the borderline between sound and unsound minds.

Insanity as related to disease of the ductless glands

Endocrinologists like Sajous seek to connect many forms of insanity with disorder of the ductless glands; for example, melancholia is spoken of as due to slowed metabolism in the brain cells due to thyroid deficiency; psychasthenia or adrenal psychosis is the result of Addison's disease, suicidal impulses and psychic disturbance may be due to pituitary disturbance; and dementia praecox is thought to be due primarily to an inhibition of the functions of the thymus gland before the completion of the physico-chemical development of the brain. The metabolism of its cells being deficient, owing to the resulting inadequate supply of nucleins, the development of the intelligence is arrested. Its stigmata are depression, exhaustion, readily fatigued mind, loss of will-power, memory and judgment, and dilated pupils. Dercum and Ellis in a post-mortem study of eight patients with dementia praecox, all of whom succumbed to tuberculosis, found that in seven the thyroid gland was under weight, and three of the seven showed colloid abnormalities. Dementia praecox cases furnish about 25 per cent of the cases under care in State hospitals.

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CHAPTER 11

CRIMINALITY

The criminal is one of the most dreaded members of society. His cleverness has been exploited so much in detective stories that he is often thought of as an adroit, inscrutable, dangerous member of society.

Estabrook in "The Jukes in 1915" finds that there is a close correlation between feeble-mindedness and crime in the Jukes. He says: "It has been the writer's good fortune to be able to study carefully many of the Juke criminals of to-day and in every case the individual has been proved without doubt to be feeble-minded. There is no evidence in the Jukes which points to the existence of a trait of criminality. Not all feeble-minded Jukes are criminal, but all the Juke criminals that I have known I regard as mentally defective.

"The amount of crime in the Jukes has not increased relatively as fast as the population and there are not as many vicious criminals to-day as at the time when Dugdale studied them. The marked criminality in Dugdale's time, which led to his study of this family and which has characterized the Jukes as distinctive from other families, is now no longer found.

"Dugdale regarded prostitution in the female as the analogue of crime in the male.

"Six matings of criminal by criminal produce 58 per cent criminals, 16 per cent sex offenders, 6 per cent criminalistic, while 19 per cent are self-controlled."

A criminal family studied by the Bureau was not marked by feeble-mindedness but by excessive alcoholism and lust for battle. Their crime was larceny and was due apparently to laziness and a desire to live better than their rightful income warranted.

It seems probable that the environment plays quite a part in the disintegration of character, and that irreparable harm is often done in the early years of childhood. If this is found to be so, it will be one more reason for safeguarding the infancy and childhood of our future citizens, and preventing them from an early knowledge of vice and crime and debauchery which stamps an

indelible impression upon their plastic minds. Ernest Poole in his novel "The Harbor" which is written in the first person, tells how as a child he ran from his home down to the wharf and in the home of a chance boy acquaintance happened to catch a glimpse of a dissolute woman in the arms of a drunken sailor. Although he broke away at once and ran for home this horrible experience polluted his mind and lingered in the background of his experience with frightful vividness for years, even to rise up and cheapen the first thrills of love which he felt for a young girl of his acquaintance. The way in which each human being is to reach his first knowledge of evil is a most critical matter, and it is certain that it should not happen too young nor yet too late as in the case of Locke's Stella Maris. Field work which probes into the psychology of crime and knowledge of evil will reveal cases quite as dramatic and interesting as those which are pictured by novelists who have keen insight into life.

The field worker should not mark as criminalistic a person who has been arrested for some minor infringement of a city ordinance, but on the other hand, she will find many persons who have never been convicted who seem certainly guilty of crime. It is always well to inquire fully into the mentality of the criminalistic, for the relation of crime to feeble-mindedness is a matter which will vitally affect the State's policy in dealing with criminals in the future.

CHAPTER 12

ALCOHOLISM

One of the commonest symbols used on charts is the A which stands for alcoholism. The temperance wave which is passing over the United States has reached only parts of New York State, but it seems safe to predict that among the last of the states to become "dry" New York will be included, and that a generation or two thereafter there will be a marked change in the appearance of many family charts. As alcoholism is probably responsible for more than 50 per cent of all the pauperism in the State, marked changes in the almshouse population should follow the elimination of saloons.

It is customary in the Bureau to mark occasional lapses from temperance with A or A¹, heavy drinking as AA or A², while extreme inebriety is marked AAA or A³. A. W. Stearns of Boston, reports as follows on his study of alcoholism:

"In a recent analysis of 100 consecutive alcoholic cases forty were diagnosed alcoholic hallucinosis and twenty-five delirium tremens. A rough grouping was made according to duration. This allowed very readily a division into long and short (acute and chronic), there being surprisingly few cases in the middle zone. This led the writer to wonder if the short cases might not be one disease and the long cases another. He looked for common characteristics in each group. One was especially noticeable, for fifteen of the twenty-five cases of delirium tremens came to the hospital following a spree, while thirty-one of the alcoholic hallucinosis cases were steady drinkers. Of the eight cases of alcoholic hallucinosis lasting less than a week four were spree drinkers, two were steady drinkers but had been on a spree, and two were unknown. This fact seems to point toward the fact that the short cases are all the same and due to the presence of alcohol in the system, while the long cases deprived of their recoveries, are much more serious, a larger percentage resulting in permanent brain damage, and so represent destruction of some sort. It is suggested that all of the short cases following a spree be called alcoholic hallucinosis, and the long cases chronic hallucinosis."

In three recent articles in the *Atlantic Monthly* Eugene Lyman Fiske has summarized the results of careful scientific research in alcoholism. He says in part:

“Saloon keepers have a death-rate higher than that of underground mine foremen; brewery foremen, malsters and the like have a death-rate higher than electric linemen, glass-workers, city firemen (laddermen, pipemen, hosemen), metal grinders or hot-iron workers, although there is nothing in the brewery or saloon business *per se* that is at all hazardous or unhealthful aside from the possible temptation to drink and its collateral hazards. The general trend of mortality shows that ‘Old Mortality’ and ‘John Barleycorn’ are exceedingly good cronies.

“The work of Benedict and Atwater in establishing the fact that small amounts of alcohol, not to exceed 2.4 oz. daily are completely oxidized in the body and that by its tissue sparing qualities alcohol may theoretically take the place of food, is well known. It is not so well known that Atwater condemned the use of alcohol as a food because of its cost and its possible ill effects on the nervous system.

“Kraepelin and his pupils have contributed most to our knowledge of the psychological effects of alcohol; they have done much to dispel the dogma that alcohol possesses stimulating properties and have plainly labeled it a narcotic. A distinct impairment of the power to memorize numbers was found after the consumption of two to four glasses of beer. Habitual association of ideas and free association of ideas were also interfered with. Aschaffenburg found that moderate doses of alcohol lessened the amount of work done by printing compositors and increased the liability to error.

“William James aptly characterized the psychic effect of alcoholism as that of ‘narrowing the field of consciousness.’

“Alcohol is now seldom used in acute illness except as a substitute for food. There appears to be no increase in blood-pressure from its use in therapeutic doses in man. As a food, too, it is discredited in acute disease.

“Alcohol is a depressant, a narcotic, often exerting even in small daily doses, an unfavorable effect on the brain and nervous functions and on heart and circulation, and lowering the resistance of the body to infection. My cumulative judgment is that alcohol is a destructive force, wholly evil in its total effects.

“That death is always a pathological finish to some form of poison, strain, starvation, injury or bacterial infection, and not the effect of time, is a concept only just taking form as we gain knowledge. Alcohol is one of these poisons responsible for gradual bodily impairment and decay and consistently imposes a burden of poverty, disease, insanity and crime, which not only warrants but demands energetic action for its control as a social evil.

“As to its effect on progeny, the degree of this effect in man is debatable, but there is positive proof of an extremely adverse

influence on the germ plasm of animals, as shown by Stockard. Until the degree of this influence in man is determined, which should properly receive the benefit of the doubt — alcohol or the baby?

“Alcohol is alcohol either in whiskey or beer. It is nonsense to claim that beer is a hygienic drink.”

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CHAPTER 13

SYPHILIS

It is more difficult to get information on the distribution of syphilis than on alcoholism. Many times it is suspected but no confirmation of the suspicion can be obtained. The physician who treated the case may be dead, or his records may not be available. In general the investigator suspects syphilis when she sees the characteristic combination of symptoms, patchy hair, a running nose, Hutchinson's teeth, gets a history of sore throat and rash on the back, together with a general sickly look and certain lesions. The ravages of syphilis are so great that it is usually assumed to have an unfavorable effect upon the mentality of offspring. A direct connection between it and locomotor ataxia and paresis has been established. It also causes a large proportion of the cases of cerebral arteriosclerosis. 19.4 per cent. of all male first admissions and 7 per cent. of all female first admissions to the New York State hospitals during the year ending September 30, 1913, occurred on the basis of syphilis as an essential cause.

CHAPTER 14

SEX OFFENSE

All sex matters that are learned about should be recorded, but a woman should not be marked Sx, for a light offence, or even for the birth of one illegitimate child, provided she has not been otherwise loose in her conduct. For a woman to be true to one man while she lives with him, pretty nearly satisfies the moral law, even without marriage. Frequent changing of husbands is condemned, but we have known of cases in which women lived with three men, had children by each, and remained true to each until their death, where although there was no marriage ceremony, we still felt that the woman had kept within the pale of the moral law. It is the custom for people of intelligence to condemn roundly all moral lapses, but in too many cases they make exceptions of themselves, and argue that whatever they do is all right as long as it is not discovered. Owing to the great divergence between moral code and moral practice, and the general confusion as to real ideals of morality the field worker must rate people more or less according to the moral standards of the community in which they live. Thus one chart will not be strictly comparable with another if this is done, for one may be rated with a high moral standard and another with a low standard. It is for the research worker to try to determine whether sex irregularities have a very deleterious effect on progeny and civilization, or whether the sexual act is after all a natural act, which can be performed with some freedom without bad results.

The present social viewpoint is that all social excess is bad, and that purer standards of living must be established in all classes of society. Field work in general brings to light so much that is filthy and disgusting in conduct that it sometimes seems very doubtful if there can be any real regeneration of human behavior without a thoroughgoing assault upon the citadel of vice. That alcoholism, the age-long habit of many of the race, has been decried and become unpopular, is the most hopeful sign that possibly sexual excess will be attacked not so much from the moral point of view, as from the economic and social point of view, as something which makes men less desirable in industry, less suitable in the home, and poorer citizens. The moral agitation against alcoholism was never fruitful of many results in

proportion to the efforts expended, but when it was found really to interfere with business efficiency its days were numbered. Self-control in sex matters depends much upon the amount of license allowed and over stimulated appetite for sexual life calls for more gratification than an abstemious well-controlled instinct.

We find that it helps to clear our ideas in regard to social traits to analyze them. A given analysis may not be final, but it represents careful thought on the subject by the investigator and that is what counts. A member of the Bureau presented the following classification of sex activities and motives at one of the staff meetings, and it is given here to encourage other investigators to attempt to think out and analyze the problems they are studying.

ANALYSIS OF SEX PHENOMENA

DESIRABLE

Regular sex life

One mate of opposite sex

UNDESIRABLE

Abnormal sex life

No mate

Self-abuse

Perversion

Sodomy

Incest

Biological features

The union must be fertile

Sterility

Offspring healthy

Offspring congenitally diseased

Ages of mates suitable

Extreme or unsuitable matings

Social considerations

Self-supporting union

Pauper union

Of like station in life

Mésalliance

Compatible temperaments

Family jars

Honor and morality

Purity of thought and conduct
before marriage

Spooning

Illicit acts

Not to court anyone whom one
cannot marry

Illegitimacy

Venery

No promiscuity

Licentiousness

Not to break up unions already
formed

Trifling

GETTING A MATE

DESIRABLE

UNDESIRABLE

The game

Instinct of the chase
 Instinct of the decoy
 Conquest

Commercialized vice
 White slavery
 Prostitution

*The practical method**In America**Abroad*

To choose after knowing many
 of the opposite sex
 To marry for wealth and social
 position

Parental choice
 Dot
 Peerages

Idealism

Soul mates
 Physical passion sublimated
 into ideals
 Maternal instinct supreme

Ruthless affinities

KEEPING A MATE

Ethical standards

Take what is unclaimed
 Stick to your choice
 Self-adaptation

Adultery
 Infidelity
 Selfishness

Religious convictions

No birth control for Jews and
 Catholics
 No divorce for Episcopalians
 and Catholics

No sterilization
 Birth control
 Free unions

Patriotic motives

Produce good offspring

Race suicide

CHAPTER 15

WANDERLUST

While this has been thought to be an hereditary trait it requires further study. The early gratification of it should certainly be nipped in the bud, for the desire to roam grows enormously with the opportunity. When a child gets in the habit of running away or of staying out all night, the prognosis is bad as far as future social behavior is concerned. Wandering away is a peculiar trait which should be analyzed as far as possible. Even certain hens and other barn yard fowl show a similar propensity, which is an individual deviation from the expected conduct.

Lancaster says in relation to wanderlust:

“This feeling that home is shut in and the desire to get away and travel, to see for one’s self and form new associations, is an instinct as old as the race and common to all animal life. It is like the migratory instinct of birds. It may spring up suddenly with the most obedient and well-bred children. It is not a sign of degeneration or of less love for the home or parents. * * * The feeling is strongest at sixteen or eighteen or about the time of the final approach of maturity. * * * The sudden feeling of rebellion against authority, which often surprises the child as much as the parent, is another instinctive habit of the race. These crop out in the best children, sometimes with a violence that shocks everybody.”

Hall shows how prevalent is the instinct to wander:

“At the dawn of adolescence this impulse to migrate or wander shows a great and sudden increase.

“This instinct, if not normally developed and reduced again by the right correctives, has many strange forms of persistence into adult life in gad-about, globe-trotters, vagabonds, rovers, gypsies, tramps, or those interesting psychic species who move or change their vocation, go from country to city, from housekeeping to boarding, the swappers and traders of all they possess, an unique type of travelers, with no purpose but to go, boatmen and trainmen, who for love of it cannot leave their vocation, the passionate shoppers, meeting and funeral-goers, gossips and newsmongers.

hunters, fishermen, and other restless classes who are averse to all static conditions, and in whom the home-making instinct is dying out."

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CHAPTER 16

PAUPERISM

Of all the age-long evils pauperism is one of the worst and most intractable. There are indications that it is lessening some, but it is still so common that in some localities one person in four is an object of relief. When, as in England only a few generations ago, pauperism results from labor conditions, the poor are not to blame for their dependent estate, but in New York State in the twentieth century, in this period of great prosperity and good public schools, there seems little excuse for a person to grow up so shiftless and inefficient that he cannot earn at least a humble living by common labor. In families with a narrow margin financially, sickness sometimes operates to throw them below the line of self-support, but with better housing and health supervision, and with industrial fairness, every man ought to be able to support himself unless he is low grade feeble-minded.

The reason why some persons do not work seems to be that they are lazy and will not make the effort. Early habit formation is all-important to correct this evil. These persons with an indisposition to exert themselves ought to come to light in the public school system, and a special effort be made in their cases to find out what they can do, and train them to do that well, so as to stimulate their self-respect.

Field workers in the line of charity should record every case of public or private relief in the family, for that is the main theme of their investigation. It is the part of the investigator to determine the factors which have made a given family or member of a family dependent, in order that this condition may be prevented in the case of others.

Indiscriminate giving is one of the main causes of dependence, for the human mind is so constituted that if it once gets something for nothing it lives in the constant hope of doing so again. The immoral effects of carelessly given relief are so great that the greatest caution should be used by the charitably disposed.

CHAPTER 17

HEADACHE AND MIGRAINE

Headache is a frequent manifestation of the most varied disorders of the nervous system and of other organs. It is merely a symptom of so many morbid states, and is often an accompaniment of constitutional diseases. As the meninges, especially the dura and a large area of the cranium, receive their sensory supply from the terminal sensory branches of the trigeminus, and as the meninges are also supplied by branches of the sympathetic nerve, it is reasonable to assume that headache is the result of direct or indirect irritation of these nerves. Headaches due to physical disturbances must be due to processes originating in the higher cerebral centers through which superficial pain is perceived.

In true neuralgia the pain is paroxysmal in character and directly limited to the course of the nerve and its distribution. According to Jelliffe the most persistent neuralgias of the face are those of the trigeminus. But the *tic douloureux*, in its ordinary sense, is rarely confused with a headache. This is particularly true when the two lower branches are involved, but it is not so apparent when the supraorbital is the seat of the pain. When this latter branch becomes involved, a diagnosis of headache is not at all infrequent and it is imperative at times to separate such a form of neuralgic pain from a neuralgic pain due to migraine, or to a brain tumor, to a pachymeningitis, a history of neurasthenia, or an eye muscle occupation neurosis.

The idea that the location of the pain in any particular region of the head is always directly related to some special underlying, adjacent or remote pathological process (except in pericranial inflammation) has not been substantiated by clinical experiences. The headache may be confined to the following regions, and may be confined to one or both sides, vertex, parietal, temporal and occipital. If headache affects the whole head it is described as general or diffused.

Headaches are described as acute, sharp, throbbing, darting, dull ache, boring, burning, stabbing, etc. They may be transient,

paroxysmal, periodical or continuous, and may vary in degree and location from time to time. Pain is a subjective symptom. We can judge of its degree only by the *tout ensemble* of the individual and by its association with unmistakable physical expressions.

For practical purposes headaches may be divided into two groups: functional and organic. The functional are by far the more frequent and include those resulting from various constitutional disorders and from causes not situated in the skull or cranial cavity, excepting disturbances of special sense organs, such as the eye, ear, nose and dental caries. Some special forms of cerebral circulation may also be placed in this category. The organic includes all types of intracranial disease, whether vascular, meningeal, or cerebral and disease of the cranial bones.

Functional headaches

Toxaemic 1. Retained excrementitious substances
 2. Products of defective metabolism
 3. Infectious germs or their toxins
 4. Various drugs
 5. Graves' disease

Neuropathic . . . 1. Neurasthenia
 2. Hysteria
 3. Epilepsy

Reflex 1. Ocular
 2. Gastric
 3. Nasopharyngeal
 4. Auditory
 5. Dental
 6. Uterine
 7. Sexual

Circulatory . . . 1. Hyperaemia
 2. Anaemia

Migraine

There are two kinds of headache which occur in rheumatic subjects. One is due to autotoxemia. This is diffused and is

similar to that of other toxemias. The other is a true muscular rheumatism, or myalgia located in the scalp and affecting particularly the occipito-frontalis muscle and its aponeurosis. There is a history of other attacks of muscular rheumatism in other parts of the body. Patients may also have suffered from acute or sub-acute articular rheumatism. Like other forms of muscular rheumatism it is brought on by exposure to cold.

Headache is frequent in gout. It may be due to toxic products of defective oxidation or the result of vascular disease affecting the cerebral circulation.

In Graves' disease the condition is probably due to autotoxemia from hypersecretion of the thyroid gland, which is often preceded by sudden or prolonged depressing emotions.

Neuropathic headache

Headache is often an important symptom of neurasthenia, but is not present in all cases. As a result of these varied forms of cephalic paresthesias, such patients are inclined more or less to indulge in excessive introspection, morbid and apprehensive. Diagnosis is possible by means of other neurasthenic symptoms, increase through mental effort or excitement and absence of evidence of organic cerebral disease.

Migraine

Migraine, or "sick headache," or hemicrania, is characterized by occasional attacks of intense headaches, frequently unilateral which are associated with a feeling of nausea, or with vomiting. It is confined chiefly to the course of the fifth nerve. Sometimes there are transient visual disturbances. For symptoms the headache is preceded by premonitory feelings such as vague indisposition, restlessness, irritability and somnolence, slight dizziness, etc. Gradually it increases in intensity. During the attack, all the senses become more acute and there is a general hyperaesthesia, so that bright light and slight sound are disturbing. The pain may affect either side laterally, alternately, or both sides may be involved. There is occasionally polyuria at the end of the attack. When the pain subsides sleep follows and the patient awakes free

from discomfort. The attack may last several hours or three or four days. Migraine is preeminently an inherited disease. The constitutional peculiarity which predisposes certain persons to migraine is not clearly understood. That some persistent pathological condition must exist is quite evident. Dr. Remy of Porto Rico says that migraine is due to a deflected nasal septum. Indigestion and intestinal autotoxaemia are the most important acquired factors in the causation and persistency of the affection. Herein it seems related to epilepsy. Neurasthenia, hysteria, gout and various conditions play an important rôle. It is differentiated from other forms of headache by its periodical and paroxysmal character, its usual limitation to one side of the head and its association with visual disturbances and other evanescent sensory symptoms. It usually begins after the twentieth year, but has been known to commence after the fifth and sixth. The interval between attacks varies from two weeks to several months. In women it is likely to occur at or about the menstrual period. It is occasionally found in conjunction with epilepsy; sometimes it alternates with epileptic attacks, or epilepsy follows migraine which has disappeared. It is on this account that the field worker should be careful to differentiate migraine from other kinds of headache.

The pathology of migraine is obscure. The prevailing theory is that attacks are due to periodical discharges of nerve force originating in the cerebral cortex or in the sensory centers involving principally the intracranial branches of the trigeminus and pneumogastric nerves. According to a recent theory the attack is produced by an acute transient closure of the foramen of Munro and a consequent swelling of the brain.

Headache in acromegaly may be localized in the occiput or frontal region, or be confined to one side of the head. It may be continuous or intermittent. Almost always there are ocular symptoms. The pain is often persistent and severe; usually worse in the morning. Diagnosis is made by recognition of the pathognomonic signs.

According to Sachs, headaches may be due to:

1. Anaemia and malnutrition
2. Neurasthenia
3. Transitory hyperaemia, as it occurs in heart disease or at the period of menstruation.
4. Gastric disturbances
5. Genital irritation
6. Ear disease

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CHAPTER 18

THE DUCTLESS GLANDS

A. Biedl says, "Formerly every correlation of organs was regarded as nervous; today, however, even nervous actions are regarded as brought about chemically." The most intimate relations exist between the ductless glandular system and the nervous system, whereby practically all the somatic and vegetative functions, yes, even the mind itself, are brought within the zone of influence. In diseases of the nervous system and psychoses metabolism is often altered in a profound way.

Stabile, debile and labile

Wunderlich distinguishes a strong, an irritable and a lax constitution. We can group individuals into those with stabile, those with debile and those with labile vegetative nervous systems, and those with stabile, debile and labile ductless glandular systems.

The intimate relations that exist between both systems would lead us to expect, however, that they are to be found very often united in the same individual. As the hereditary factor is very prominent in both we find them in the most diverse variations and combinations in members of the same family. In individuals with a predisposition to a debile vegetative nervous system there develop, under the demands that life makes on the organism, an asthenia of the vegetative organs with sluggishness of evacuations, depressive mental attitudes, etc.

The ductless glandular debile individuals are those in whom there is not only a small functional breadth, but perhaps also a tendency for certain diseases, especially for infections, or a slighter resistance against alcoholism or against certain toxins that may proceed from a focus of infection somewhere in the body.

Labile individuals vary in weight often, strong emotion calls out glycosuria, etc.

The stabile are those with an enviable equilibrium of their vegetative functions, their metabolism and their psyche.

Cushing suggests that the psychopathology of everyday life may hinge largely upon the effect of ductless gland discharges upon the nervous system.

Hypoplasia

According to McCready, all conditions of retarded and deviate development, except those due to purely accidental and environmental causes, have their immediate origin in a faultily organized physical constitution, which he calls hypoplasia. This may be due to causes distinctly hereditary in origin, to antenatal agencies affecting the child *in utero* or to a combination of these with exciting factors, toxic, emotional or traumatic, operating *post partum*. Hypoplasia of the nervous system gives us the idiot at one extreme and the so-called neurotic makeup at the other.

Importance of endocrinous system

Harrower states: "At a recent Italian congress an official report was made and adopted, in which it is deemed established that the endocrinous system exerts an influence on anomalies of growth, morphogenesis and organic metabolism, and on nutrition and inherent excitability of the nervous system, and on resistance to infections and intoxication, and also that it has a preponderating influence on causation of dyscrasias and morbid tendencies. The equilibrium of the nervous system, the sympathetic in particular, is also regarded as maintained by the internal secretions. In nervous diseases *per se* they act probably as indirect or predisposing factors.

Aging

Not only growth but ageing is due to metabolism. Ageing is due primarily to slowing of the processes of oxidation. This entails autointoxication. In normal ageing this intoxication is counterbalanced by the defensive resources of the body. In many cases the arterial system suffers first. A connection between old age and myxedema was first discerned by Sir Victor Horsley in 1890. Lorand pointed to the testicles, ovaries, adrenals and pituitary body as important in the ageing process, besides the thyroid gland. Metchnikoff emphasized the importance of the ductless glands in the ageing process. Sajous thinks that the thymus gland plays a part in progeria, i. e. in precocious senility. An important cause of premature old age is suboxidation however produced.

Acceleratory and retarding glands

When one of the ductless glands is diseased the harmony of concerted action is upset.

The glands that seems to regulate growth are the

thyroid
hypophysis
thymus
pineal (?)

There seem to be acceleratory and retarding hormones.

Acceleratory

Thyroid, quickens metabolism,
increases excitability

Chromaffin tissue, increases excitability of the sympathetic nerves. Decomposes glycogen, increases respiratory metabolism

Posterior lobe of hypophysis

Generative glands

Retarding

Pancreatic insular apparatus, controls building up glycogen and assimilation of fats, diminishes excitability of sympathetic nerves

Parathyroids, probably assist assimilation of calcium in the ganglion cells and at the same time reduce their excitability

Anterior lobe of hypophysis, reduces fundamental exchange

Interstitial glands, influence ossification, growth of larynx, etc.

Probably thymus
epiphysis
suprarenals

The ductless glandular system influences the excitability of the vegetative nervous system by the hormones that it gives off to the circulation. This is partly independent of the central nervous system. Not all hormones affect all organs, e. g. adrenalin does not influence the sweat glands.

Multiple disorder of glands

It is practically impossible to have a disorder of the ductless glands involving a single gland of internal secretion. The glands of internal secretion, as McCord says, constitute an "interlocking directorate," which controls the body, so that uniglandular disorder invariably means a pluriglandular complex. There is a recognized association between epilepsy and myxedematous idiocy, cretinism and Basedow's disease. Goitrous mothers often give birth to epileptic children and many cases of simple goiter become epileptic. (Harrower) In a study of 17 cases of epilepsy from the endocrinous point of view, alterations of the thyroid were found in every case. In 12 of these the structure of the gland was completely altered with areas of sclerosis and limited zones of compensatory hypertrophy of the glandular tissue. Parhon examined the thyroid of 12 epileptics and found it smaller than usual showing frequent and variable histologic changes. The iodine content was often increased.

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CHAPTER 19

THYROID GLAND

The thyroid gland lies at the upper part of the trachea, and has two lobes.

The thyroid gland influences protein metabolism, and affects the fundamental exchange, that is, the amount of carbonic acid production and of the oxygen requirements, or of the heat production, on ruling out of digestion and muscular work. The fundamental exchange is a measure for the work that in a resting, fasting organism is performed by the heart, the glands, the nervous system and so forth, including the muscular tonus.

Thyroiditis is not uncommon in the early stages of syphilis, slight sclerotic processes are often present in tuberculosis and in severe alcoholism. Severe inflammatory processes in the thyroid have been observed after typhoid fever, variola, influenza, malaria and the puerperium, and especially after angina and acute articular rheumatism. The condition of hyperthyroidism does not last long usually. Thyroid congestion is caused by menstruation and pregnancy. Congenital rickets and infantilism can improve under thyroid treatment. When the thyroid does not function the bones grow slowly in their cartilaginous ends. Thyrogenous obesity may depend on inherited predisposition or may follow infectious diseases.

Copious feeding of meat to dogs makes the thyroid very poor in iodine. The thyroid glands of fetuses and new born children are iodine-free. The thyroid glands of herbivora have a high iodine content and those of carnivora low. Iodothyrene contains phosphorus in organic combination, and 9.3 per cent. iodine.

Extirpation of the thyroid causes the skin of the head to swell (the mucin accumulates), the skin becomes rough, hard, dry, its secretion ceases, hair falls out, the voice harsh and monotonous. It may bring on epilepsy and the psychical functions are reduced.

The thyroid gland is controlled by the central nervous system.

Symptoms of hypothyroidism are deficiency in the outer third of eyebrows, *signe du sourcil* and in adults painful disorders attributed to rheumatism, neuralgia, sciatica, etc.

Hyperthyroidism

Feeding a patient too much thyroid causes various symptoms of poisoning, as tachycardia, polydipsia, polyphagia, polyuria. The quantity of urea increases, sugar appears after some time in the urine, and the animal falls off in weight. In men it causes excitement, abnormal sensation of heat, increased destruction of proteid, jaundice, albuminuria, cardiac palpitation and weakness, the protein requirements are increased.

Myxedema

Skin often yellow and sheds like powder, a central flush in the cheeks. In advanced cases perspiration is often absent; the palms of the hands are dry. There is a warty growth of the skin, the hair is thin and scanty, nails often discolored, eyebrow and pubic hair scanty. Teeth brittle or carious, feet cold, body cold to touch, languor, cold felt keenly in winter, general increase in body size and weight, solid edema in subcutaneous tissues, thyroid usually smaller than usual, distinct anaemia. The nervous and muscular systems are disturbed. There may be clonic tetanus-like spasms, rigidity, paralysis, anaesthesia. Thyroidectomy not infrequently brings on functional neuroses such as epilepsy. There is weak memory, extreme irritability, stupidity, subnormal temperature, skin pale, electrical resistance is increased.

In dogs whose thyroid was removed a meat diet produced tetany, but the tolerance of carbohydrates was exalted. Death follows meat diet. The protein requirements are low.

In severe cases of myxedema there is disturbance in the sphere of the *genitalia*, in men libido is lost. Incomplete forms, such as chronic benign hypothyroidism, have chronic muscular pain, rachialgias, great lassitude especially in morning hours, mental disturbances, menorrhagias, amenorrhoeas, sensations of cold, hoarseness of voice, rather obstinate constipation, hair falls out over occiput, apathy, depression. Sometimes many persons in the same family have signs of chronic mitigated thyroid insufficiency. They are fond of staying at home, sensitive about their appearance, have hallucinations and subjective sensations, and voluntary movements are executed more slowly.

Cretins

Cretins are harmless, apathetic, inert, have large abdomens, slow gait, harsh voice, dislike bodily exercise, have a dull placidity and contentment, drool, anemic, no tics, do not masturbate, no sweating, ulcers do not heal readily. Twice as common in females as in males. Umbilical hernia is a constant finding in the higher grades of sporadic cretinism. Sense of taste and smell but little developed, sense of touch much diminished. They are apt to die young. Diabetes has not been observed among cretins.

There is reported a case of congenital myxedema with the thymus gland hypertrophied. Myxedema in adults has followed erysipelas and acute rheumatism.

In typical cases of cretinism the characteristic symptom, myxedematous infiltration of the tissues, seldom appears before the first year, owing to the fact that the infant receives through the maternal milk sufficient thyroid secretion to compensate his own deficiency. The neck thickens and is rendered irregular by swellings or pads. Gradually the body becomes obese, particularly the abdomen. The tongue is large and infiltrated and has a constant flow of saliva. The eyes are small and half closed.

Where cretinism abounds there are many stutterers, deaf-mutes, imbeciles and dwarfs.

Mongolians

Mongolians resemble cretins in sensitiveness to cold, hoarse voice, sluggish circulation, short, thin hair, weak memory. Their dentition is delayed.

Shock may cause epilepsy and it may also cause goiter. Gowers reports two sisters one of whom had goiter and one epilepsy.

Goiter

In 1907 it had not been demonstrated that either the presence or absence of iodine in water has any effect on development of endemic goiter. Goiter develops at times of change in sex functions and is supposedly related to the iodine content of food or water. Iodine has been used to reduce the goiter, also it reduced the mammae in size. Iodine is a constituent of the thyroid gland.

Use of the thyroid gland for feeding is followed by increased excretion of nitrogen and phosphorus, which lasts long after the thyroid feeding is stopped.

Exophthalmic goiter

The protein requirement is increased in exophthalmic goiter. This disease often develops at the close of acute infectious diseases, as typhoid fever or scarlet fever, or after rheumatism or quinsy. In 56 cases, rheumatism preceded in 10 per cent. Any exhausting process as acute illness or loss of blood, sexual excess, pregnancy, lactation, alcoholism or syphilis may predispose to it. 20 per cent. of cases seemed emotional in cause, in 9 per cent. generative organs were involved, in 62 per cent. goiter was the first sign of the disease, and in 20 per cent. exophthalmus. Bronchitis or other respiratory diseases greatly increase the mortality of the disease. Of 93 cases 11 per cent. had one or more members of their families who had suffered from some form of thyroid enlargement. Females rather than males have exophthalmic goiter. Symptoms are tachycardia, nervousness, irritability of contradiction, intolerance, a want of true application with special attention to unnecessary details, untruthfulness, sleep often disturbed, great depression in the blood pressure from center to periphery, increased fundamental exchange, increased protein exchange, increased elimination of salt, lowering of assimilation of carbohydrates and finally spontaneous glycosuria, sweats, mononucleosis, tremor, diarrhoeas, psychic agitation. Voracious appetite, bodily wasting, edema, loss of hair, lack of desire and impotence of males, skin flushed, thin and smooth, warm and moist, temperature often above normal, need of high protein diet. Can have symptoms of myxedema also. There may be also thymic symptoms. The juice from exophthalmic goiter, injected intravenously causes a condition similar to acute iodine poisoning, while juice of a normal thyroid gland, even in much larger doses, will usually give rise to no such symptoms. A minor symptom in disthyroidism is persistent diarrhoea. Lymphocytosis in this disease is caused not by the thyroid gland, but by thymus intoxication and can be corrected only by thymectomy. The effect of the thymus on the thyroid is both reciprocal and antagonistic.

FALTA'S COMPARISON OF

*Cachexia Thyreopriva**Morbus Basedowi*

Absence or atrophy of the thyroid gland	Swelling of the gland — mostly of a diffuse nature, hyper-vascularization
Slow, small, regular pulse	Frequent, often tense, rapid, now and then irregular pulse
On application of cold to the skin, all vasomotor changes are absent	Extraordinarily irritable vascular nervous system
Listless quiet gaze without expression and animation	Anxious, unsteady gaze which is choleric on fixation
Narrow palpebral fissures	Wide palpebral fissures, exophthalmus
Retarded digestion and excretion, poor appetite, few demands	Abundant evacuations, mostly abnormal appetite, increased demands
Slowed metabolism	Increased metabolism
Thick, nontransparent, folded, dry to scaly skin	Thin, transparent, finely injected, moist skin
Short, thick fingers often broadened at the ends	Long slender fingers with pointed end phalanges
Sleepiness and tendency to sleep	Sleeplessness and disturbed sleep
Retarded sensation, apperception and action	Accelerated sensation, apperception and action
Deficiency of thoughts, listlessness and loss of emotivity	Flights of thoughts, psychic excitement as far as hallucination, mania and melancholia
Awkwardness and clumsiness	Constant unrest and haste
Stiffness of the extremities	Trembling extremities, increased motility of the joints
Remaining behind of bone growth, bones short and thick and often deformed	Slender skeletal build, now and then weak and thin bones
Constant feeling of cold	Unbearable sensation of heat

Cachexia Thyreopriva

Retarded, heavy breathing

Increase of body weight

Senile appearance, even when
the patient is young

Hair thick, loose and brittle

Morbus Basedowi

Superficial breathing with de-
ficient inspiratory expan-
sion of the thorax

Reduction of body weight

Youthful luxuriant body devel-
opment, at least in the initial
stages

Hair dry and thin

CHAPTER 20

PITUITARY BODY OR HYPOPHYSIS

The pituitary body is a small reddish body located in the sella turcica. It seems to have three parts, an anterior and a posterior lobe and an intermediate part.

The anterior lobe controls connective tissue growth, especially skeletal growth.

The posterior lobe stimulates metabolism, maintains blood pressure, increases peristalsis and stimulates the sympathetic system, thereby improving nutrition, increases the production and flow of mammary glands, stimulates uterine contractions, increases urinary excretions, possibly increases the absorption of the cerebrospinal fluid. It is the remedy *par excellence* in surgical shock, being more efficacious than adrenalin. Fühner isolated eight different active substances from the posterior lobe.

The pars intermedia is said to produce a diuretic hormone which is the basis of a diabetes insipidus.

The anterior lobe is related to the thyroid gland and like it formerly was a duct gland which poured its secretion directly into the intestine. If the thyroid gland ceases to function the anterior lobe of the pituitary body hypertrophies.

The gland as a whole has a direct influence in genital development and an inhibitory action upon the activity of the pancreatic juice.

Other endocrine glands can partially compensate for deficiency and surplus in pituitary secretion. Thus the thyroid gland partially compensates for the connective tissue control and metabolism in the skin, hair, joints and so on, while the adrenals partially control blood pressure and the stimulation of the smooth muscle fibre. The pancreas opposes the pituitary, as may be seen by their contrary effect in sugar tolerance.

Dyspituitarism

In dyspituitarism there may be excessive adenoid formation and frequent nosebleeds. In hyperpituitarism there may be weakness of the bladder walls, leading to enuresis with a high

sugar tolerance and an abnormal desire for sweets. The temperament becomes different, the subject cannot get along with others, cries easily, is cowardly and occasionally has epileptoid attacks. Preadolescent hyperactivity may lead to gigantism. Hyperactivity of the pituitary body may lead to mental precocity. Hypoactivity means mental and bodily sluggishness, dullness, apathy, backwardness in school, loss of control at slightest difficulty and dismay at the problems faced. It may occasion nosebleed and failing eyesight, great roundness of the face, great height of the frontal bone, edema of the eyelids, falling of the hair and its absence in the axillae. Hypo-activity of the anterior lobe may lead to adiposity, underdevelopment of the skin, bones, sex organs and secondary sexual characters. The perverted function of the gland causes dystrophia adiposo genitalis, and also dwarfism. Extirpation of the gland leads to genital atrophy. Hypophyseal dystrophy shows no inclination to glycosuria, but there is an abnormally high tolerance for carbohydrates.

Pituitary extract stimulates the involuntary muscles, as the arteries, pupils of the eye and uterus. Extract of the glandular anterior lobe retards coagulation of the blood, while the extract of the nervous posterior lobe accelerates it. Partial removal of the anterior lobe leads in some cases to adiposity, and is sometimes associated with polyuria, glycosuria, shedding of hair, lessening of sexual activities, and atrophy of the testes and ovaries, in a way a reversion to infantilism. Castration of cocks and some other animals produces marked hyperplasia of the pituitary body, but an injection of testicular extract abolishes the hyperplasia. Excessive activity of the gland can cause a remarkably dense growth of hair on the head, and in one woman caused milk to form in the breasts. The hair on the breast is increased, the male voice deepened and men lose their libido. Occasionally there is voracious hunger and great thirst and the skin is moist.

During pregnancy the pituitary body enlarges in woman, especially the anterior lobe is changed and resembles an epithelial tumor. In castrated women there is frequently an enlargement of the pituitary body. Pituitary extracts are good to give in shocks, for they keep the blood pressure raised for some time. This extract has a powerful action on the uterus, and is used to

hasten labor and prevent post-partem hemorrhage and uterine sub-involution. Bell recommends giving extract of the infundibulum in cases of sluggish intestinal peristalsis. It stimulates galactogenesis and occasionally aborts a mammary abscess. It increases the heart action and raises the blood pressure, thus exerting a salutary influence in shock and collapse; it also produces copious diuresis.

Relation of pituitary body to epilepsy

Spear of Louisville used extract of the anterior lobe in epilepsy. His case was that of a sailor, aged 28, who had been epileptic for 23 years. Since the age of six he had attacks three or four times a week, the highest number of attacks per week being eight, and the longest interval between them twenty days. He gave two grains of anterior pituitary lobe by mouth three times a day, and later increased the dose to five grains. After a month attacks became less frequent and in four months ceased. Medication continued two months longer. At the time of reporting the case the man had passed eight months without a seizure.

It has been stated by Horsley that an undue excitability of the cortex supervenes on posterior lobe deficiency which might account for epileptic seizures. In Timme's experience these cases are usually dypspituitary in nature, i. e. they give many evidences of a hyposecretion of the gland, dry skin, amenorrhoea, adiposity, malformed teeth, narrowed eye distances, high sugar tolerance, low temperature and pulse rate, combined sometimes with such hypersecretory conditions, as much hair, high blood pressure excitable temperament and excessive sexual irritability. In these epileptic attacks patients frequently have so-called uncinate fits, due probably to the neighborhood symptoms of an enlarged pituitary pressing upon the uncinate gyrus of the temporo-sphenoidal lobe. These patients frequently have dreamy states associated with gustatory and olfactory impressions without true convulsions, and their epileptic aura is usually one of taste or smell disturbance. Cushing, quoted by Tucker, gives several reasons why hypopituitarism is related to epilepsy. Briefly they are as follows:

“1. Sir Victor Horsley noted motor cortex hyperexcitability in canines after hypophysectomy.

2. Cushing observed a tendency to epileptiform convulsions in animals kept for long periods after partial hypophysectomy.

3. Epilepsy is a frequent accompaniment of clinical conditions in which an insufficiency of the gland is manifest.

4. The pituitary body is prone to be damaged from bursting fracture of the base of the skull.

5. It is believed that the posterior lobe secretion enters the cerebrospinal fluid and this bathes the cortex with a substance which is essential to the functional stability of the cortical cells.

6. Many individuals supposed to be suffering from so-called genuine epilepsy present symptoms of hypophyseal deficiency, and in some of these hypophyseal extract has served to moderate the seizuress."

By means of the radiograph every case of epilepsy which gave definite symptoms of hypopituitarism showed marked sella turcica changes. This is thought to be a distinct advance inasmuch as it separates a class of helpable epilepsy for which treatment is more or less effective.

Acromegaly

Acromegaly is due to an increase of function of the glandular hypophysis. It is a chronic disease characterized by an abnormal increase in the size of the extremities, viz. the hands and feet, and generally the head, due to an hypertrophy of the bones and soft parts of these regions. The symptoms are glycosuria, prognathism, yellow skin, sausage fingers, long, oval face, voracious appetite, dwindled sexual desire, somnolence, possible melancholy, facial neuralgia, rheumatic pains, polyuria, dry and swollen skin, hair falling out, harsh voice, fatty and colloidal degeneration of kidneys and liver, hyaline degeneration of arterial walls, migraine, optic disturbance, chronic inflammation of the pancreas, sometimes goiter, abnormally low metabolism, ringing in ears, general constipation, menstruation absent, increase of weight, kyphosis followed by loss of height. Nose enlarged, eyebrows often heavy, eye balls more or less prominent, tactile sense impaired, slight numbness in fingers, often attacks of syncope present, nails often brittle with longitudinal striation, big toe often immense, frequently increased perspiration, sometimes of bad odor, there may be pigmentations on the skin, and pendulous growths of molluscum fibrosum frequently occur on the face, vasomotor disturbances, indicated by tingling flushing and local sweating, marked tendency to

varicose veins, hemorrhoids often present, upper and lower lip thick, everted and projecting, speech rendered slow and heavy by the massive tongue, chest flattened laterally, pelvis enlarged, uterus generally small and atrophied. In acromegaly the pineal gland has been found double its ordinary size, and little tumor growths have been found attached to the base of the brain. Tubercular consolidation of the lungs has often been found, and chronic bronchitis, edema, or passive congestion. The liver and spleen are generally enlarged and the pancreas shows changes. The kidneys are often diseased or may be cystic. The suprarenals are often increased in size. The disease generally begins before 40, never after 50, and lasts from ten to twenty years unless intercepted by another disease. Death is usually due to cardiac disease, nephritis or diabetes. On autopsy there are usually found adenomata of the anterior lobe of the hypophysis.

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CHAPTER 21

PARATHYROID GLANDS

The parathyroids seem important for calcium metabolism, as in tetany the assimilation of calcium in the nervous system appears to be disturbed. The parathyroids influence bone formation. These glands seem to furnish the blood path a hormone which renders innocuous the poisons which exist in the body.

Tetany

The cause of tetanic change lies in the ganglion cells of the spinal cord. The parathyroid glands exercise an inhibitory influence on the ganglia by means of a hormone. Tetany is an abnormally increased condition of excitement of the nervous system, which is demonstrable in a heightened excitability of the motor, sensory and vegetative nerves. A symptom of tetany is the electric excitability and mechanical hyperexcitability of the motor and sensory nerves. In tetany there are trophic disturbances which affect the epithelial parts exclusively, the hair, nails, skin, enamel and ciliary epithelium. The cataract of tetany is very rapid in development. It is due to degenerative changes in the ciliary epithelium. There is a connection between tetany and defect of the teeth enamel. Tetany of children is referred to trauma at birth. Rickety children are liable to tetany. They are the so-called spasmophyls. The coincidence of tetany and epilepsy is not rare, they may develop together or either may develop on the other. In parathyroprivic individuals have been observed severe unilateral or bilateral epileptiform convulsions with loss of consciousness and slowness or absence of pupillary reaction. The vegetative nerves are hyperexcitable.

Relation of parathyroid glands to epilepsy.

In 60 epileptics 28 had defects of enamel, a fact which perhaps indicates that persons who in early years have passed through tetany later often become epileptics. Most important for the relationship between tetany and epilepsy are cases of parathyroprivic tetany with epilepsy. This relationship is not accidental. One

author supposed that tetany and epilepsy depend upon the same toxic cause and to functional disturbance of the epithelial bodies.

Treatment with dried parathyroid is not successful, but Bolten got favorable effects in epilepsy by the combined treatment with dried pressed extracts of thyroid and parathyroid. The best treatment of parathyroid disease is a diet poor in meat, protracted warm baths, and roborants. A salt free diet is used when giving certain drugs.

CHAPTER 22

THYMUS GLAND

The thymus is a glandular organ in the anterior superior mediasternum, usually disappearing in adult life. Its function has been variously described as:

1. The mother tissue of all lymphoid tissue, but it is probably not altogether a lymphoid organ.
2. It fits out the leucocytes for their various functions.
3. It is in some sort of relationship with the reproductive organs.
4. Its internal secretion is an antecedent of that supplied by the reproductive organs when these are fully developed.
5. It prevents the excessive accumulation of acid in the body, phosphoric acid in particular.
6. It has an antagonistic action to that of the adrenals and thyroid gland.
7. It produces red corpuscles in early life.
8. It supplies nucleic acid.
9. In hibernating animals it stores fat for the maintenance of combustion during the winter sleep.
10. In Sajous' opinion it supplies through the agency of its lymphocytes, the excess of nucleins which the body, particularly the osseous, nervous and genital systems, requires during its development and growth.
11. Its tissues are rich in purin bodies and for that reason it may have a nutritive rôle.
12. It is considered important for the assimilation of calcium in young animals. Dogs operated on who lose their thymus suffer a kind of rachitis.

Extirpation of the thymus gland in young dogs is followed by enormous dilatation of the heart. It may be that the thymus gland acts in antagonism to the adrenals, so that when the thymus gland is removed, the action of the adrenals is not controlled and there results a hypertonus of the blood vessels, and dilatation of the heart. The thymus may furnish an internal secretion which ministers to the needs of the economy before the reproductive organs are fully developed.

Hypothyria

Hypothyria is attended by changes in the bones recalling those of rachitis. Thymectomy, to relieve dyspnea, has produced severe

rachitis. The gait of hypothyemics, when the gland is markedly atrophied, may be waddling or straddling. Loss of intelligence follows thymectomy in animals when the operation is performed soon after birth. The animal seems crushed, does not recognize its sleeping place, is incapable of distinguishing food from other articles, and munches corks and other things. There is no evidence of satiety, the animal eating incessantly articles placed before it. It is absolutely passive and indifferent to everything. Bourneville, Katz, Morel, Lange, Dieher, Garré, and Lampé found inexplicable idiocy due to absence or aplasia of thymus gland, all other glands being normal.

In metabolism hypothyemia means a lowered oxygen intake and carbon dioxide output, reduction in the volume of blood, of the number of red corpuscles, and lymphocytes and of the percentage of hemoglobin. When the hypothyemia is marked in very young subjects, there is also emaciation, asthenia, trophic disturbances of the skin, with loss of hair, edema and pallor. Thymectomy leaves the sex organs undeveloped.

Idiots who are found *post mortem*, even before the fifth year, to be deprived of a thymus gland in 65 per cent. of instances, are well known to succumb readily to intercurrent diseases, especially those of an infectious nature. In 292 cases of feeble-minded and epileptic children, Bournville found the thymus gland absent in 74 per cent. Hypothyemia means increased vulnerability to infection in children in proportion as the degree of thymic insufficiency is marked. Infantile marasmus exemplifies the acquired type of this process. The artificial food given to the infant fails to supply in chemically suitable form the nucleoproteids out of which the thymus builds the nucleins which its lymphocytes distribute to all tissues, including the nervous system and the other ductless glands. As is well known, gastroenteric infection is very common in these cases.

Stigmata

The stigmata of hypothyemia are according to Sajous:

Osseous	stunted growth
	cranial deformities of the so-called "degenerative type"
	chicken breast
	genu varum
	delayed or bad teething
	exaggerated calcium excretion

- Nervous more or less amentia ranging from the slight backwardness of the moron to profound idiocy, including the amaurotic, moral and microcephalic forms, but not the hydrocephalic, paralytic, epileptic or traumatic
- hebephrenic phenomena of melancholic type incident upon puberty
- hypothymia may promote spasticity, tremors, etc.
- Metabolism exaggerated calcium excretion
- acne of skin
- disturbance of hair and nails
- pallor and puffiness
- sluggish processes of elimination
- depressive psychoses
- Genital In congenital hypothymia the genital organs remain infantile
- Immunity Increased vulnerability to infections
- toxemia occurs both in hypo- and hyperthymia. The toxia symptoms are:
- Enlarged lymph glands, tonsils and adenoids
- contracted cardiovascular system, due to excessive metabolism in its muscular elements.
- enlarged superficial veins due to pressure
- muscular spasticity, tremors, twitches, due to sluggish circulation in the skeletal muscles.
- muscular relaxation and atony with projecting scapulae
- stooping due to sluggish circulation
- osseous deformities, pigeon breast, contracted thorax, vaulted palate, retrognathism, due to sluggish circulation and defective nutrition
- adiposis
- excessive appetite
- tendency to sweating
- tendency to eczematous eruption
- compression, that is thymic stridor at or after birth, and in acute infection, especially diphtheria, pertussis, and pneumonia
- thymic asthma
- thymic death, during trivial operations, anesthesia, bathing, swimming, coitus

pulmonary edema, due to pressure upon the pulmonary arteries or veins

Relation of thymus gland to epilepsy

In six autopsies of epileptics four were found to have a hyperplastic thymus gland, with marked hyperplasia of the intestinal and splenic lymph follicle, hypoplasia of other lymphadenoid structures, evidence of an old rachitis and a narrowed condition of the arteries. This condition is probably the same as the "constitution lymphatica" of older pathologists. It is not claimed that this is the cause of all epilepsy, for only a certain proportion of the cases present it. Pure epilepsy, originating in early life, grand mal in type, with periodic mania and no extensive gross lesion of the brain shows often a hypoplastic thymus, general lymphatic hyperplasia and vascular hypoplasia. Preparations of thymus gland given to epileptics aggravate the epilepsy.

Aplasia of the thymus gland seems very frequently to be associated with other malformations and especially in developmental defects of the brain. We have in the ductless glands, according to Sajous, a potent lever to elucidate the pathogenesis of several mental disorders. He considers that the thymus plays a role in dementia precox. There lurks hidden in the functions of the thymus gland, in correlation with other ductless glands, and the nervous system of course, the solution of another obscure question, the origin of the stigmata of degeneration, so commonly observed in idiots, viz. the abnormalities in size and shape of the cranium, the tardy closure of the fontanelles; the malformations of the ears, which are in reality due to defective cartilaginous development, the deficient growth of the nasal bones and inferior maxillary which causes the saddle-nose and receding chin, the vaulted palate, irregular dental arches, defective growth of the teeth, etc. Also related to the thymus gland is the peculiar facies of many idiots even during infancy. The absence of the thymus in 75 per cent. of nonmyxedematous idiots ranging in age from one month to 5 years, examined post mortem, as reported by Morel, emphasizes the pathogenic rôle of thymic deficiency in this connection. In cretinism the thymus and adrenals are comparatively normal, while the thyroid is degenerated.

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Falta

CHAPTER 23

SUPRARENAL GLANDS, AND PANCREAS

The suprarenals are located near the kidney.

The suprarenals seem to consist of two distinct bodies, the chromaffin tissue and the cortex. The active constituent of the chromaffin tissue is adrenalin, which increases the blood pressure. It is purely a sympathetic hormone, and maintains the normal excitability of the sympathetic nerves, is concerned in regulating blood-pressure, in the distribution of blood and the tonus of all other organs innervated by the sympathetic system, it maintains constant the amount of sugar in the blood and enters in a regulatory manner into other factors of metabolism, influences muscular power and the production of neutrophilic leucocytes.

The cortical system produces cholin which is assumed to have a detoxicating function. It is assumed by many authors that the symptoms on the part of the intestinal tract and central nervous system which are severe and remind one of an acute poisoning depend on the falling out of function of the cortex. In the growing organism it has an enormous influence on the sexual glands. General hairiness proceeds from the cortical system. In Basedow's disease the production of adrenalin is increased, in Addison's disease absolutely lessened. In tumor of the cortex young children grow hairy and get to have adult sex organs. A girl of 16, so affected, grew a beard and moustache, her voice deepened, she had obesity, atrophy of ovaries, enormous enlargement of thyroid, the hypophysis was normal, but on both sides there was a suprarenal tumor that had developed from the cortex. In a case of hemaphroditism there was colossal hypertrophy of the suprarenal cortex.

The suprarenals may neutralize the poisonous effect of muscular activity. French writers believe that adrenal hyperplasia is almost constantly associated with chronic interstitial nephritis, but others disagree. In an 18-year-old dwarf who died in convulsions, a chronic tubercular change of both suprarenals was found. If one of the suprarenals is extirpated the animal becomes sluggish, the muscles become fatigued, there is loss of weight, the appetite poor, animal dull and stupid, weak in hind extremities, the temperature falls, some animals convulse, others do not, the blood pressure falls, and the blood is toxic. The parts not affected are the digestion, combustion of proteid content of

hemoglobin, number of red blood corpuscles, there is no paralysis. Addison's disease is due to hypofunction of the suprarenals. Its signs are apathy, constipation, pigmentation of skin and mucous to a bronze color with iron free pigments, cachexia, vertigo, epileptiform convulsions, at later stages stormy nervous condition, violent delirium, acute confusion, convulsions, deep stupor, coma, pressure in the stomach, eructation, nausea, pyrosis, sometimes vomiting and epigastric pains, diarrhoea, alternating with constipation, dyspnea on slightest exertion, falling off in weight. Diphtheria toxin has a special affinity for the suprarenals. Status lymphaticus is associated with a hyperplasia of the chromaffin tissue.

A stigma of adrenal deficiency is myasthenia. The adrenals are probably not so closely related to epilepsy as some glands, for extirpation does not affect combustion of proteid or digestion.

Amaurotic family idiocy is apparently due to insufficiency of the adrenals and chromaffin tissue. Between five and ten months of age the infant ceases to grow, gets weak and blind, there is pallor and the characteristic red spot in the eye; then strabismus, nystagmus, irregularity of the pupils and dysphagia indicate the profound involvement of the muscular system. There is loss of interest and indifference to food.

A feature commonly met with in the cerebral palsies of children is periodical convulsions. Extreme adrenal insufficiency would explain convulsions which occur when the accumulation of poisons reaches a certain limit, the convulsive paroxysm being a protective reaction which brings into abnormal activity all the antitoxic functions of the body, including those exercised by the ductless glands, which from Sajous' point of view, along with the digestive glands, form the foundation of the immunizing mechanism.

The pancreas and chromaffin tissue govern carbohydrate metabolism. When the pancreas is removed it causes severe diabetes and glycosuria. The gland is important for the normal decomposition of carbohydrates in the body. It deals with the metabolism of sugar. Without the pancreas the body cannot form glycogen or fat from dextrose.

References

Falta

Sajous

CHAPTER 24

PINEAL BODY

The pineal body is a small reddish vascular body in the posterior part of the third ventricle between the optic thalami and extending to the base of the brain.

Hypofunction leads to premature development of genitalia. Foá thinks the development of the testes depends on it. There may be abnormal tallness, unwarranted growth of hair, premature sexual development, early maturity. The intelligence almost always corresponds to the age.

Hyperfunction. Universal obesity.

Apinealism leads to cachexia.

Therefore the metabolic changes that may be due to pineal lesions are:

1. Premature somatic development
2. Obesity
3. Fatty atrophy, cachexia
4. Mental precocity

In 1914 it was not certainly known what is the function of this gland.

McCord has obtained evidence of the precocity of development usually attributed to pineal deficiency in animals by feeding pineal substance, which led to a more rapid growth of body and determined an early sexual maturity. No tendency to gigantism followed. After maximum size was attained pineal administration appeared to be ineffective. Males respond best to treatment.

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CHAPTER 25

RHEUMATISM

Rheumatism is apt to occur in middle life among those exposed to hardship, cold, and dampness.

Chronic articular rheumatism is characterized by stiff and painful joints. It is often the result of a persistent toxemia, due to chronic fecal infection, and is a frequent sequel to acute rheumatism.

The cavity of the joint is not infrequently dry. The synovial membrane and its villi are thickened and adhesions may form between the opposing surfaces. The articular cartilages are distorted, perhaps eroded and partly absorbed in cases of long duration. The capsule and ligaments of the joint and the tendon sheaths adjacent to the affected articulation are thickened. Atrophy of the muscles in the vicinity is by no means uncommon. If the joint becomes ankylosed atrophy from disuse occurs.

The onset of rheumatism is slow and insidious, but the stiffness lessens with exercise. The joint may be tender on palpation, and swelling, if present, is usually slight. There is rarely redness of the joint. The disease is as a rule afebrile, but if many joints are affected there may be a transient rise in temperature. In mild cases the health is unimpaired. In more severe cases there is gastric disturbance, emaciation, anemia and neuralgia. Chronic endocarditis may be present. The disease must be distinguished from gout and arthritis deformans.

Gout is more apt to affect the smaller joints, especially the great toe. Evidences of arteriosclerosis and granular kidney are much more common in gout than in chronic rheumatism.

Arthritis deformans presents a greater deformity of the joints, and is considered by some an advanced stage of chronic rheumatism. In its treatment it is necessary to tend to local infections of the teeth, tonsils and sinuses, to use laxatives and enemata, massage, electrical treatment, hot baths, and seek a warm dry climate.

Rheumatoid arthritis develops between the ages of 30 and 50 years, frequently in women at the menopause. Sterility and uterine and ovarian disease predispose to it. There are two

theories as to its origin (1) that it is of nervous origin, due to worry, grief, overwork, etc., and (2) that it is of infectious origin. According to the first it is akin to the arthropathies of nervous origin. The joint changes in arthritis deformans are very similar to those which may occur as a result of locomotor ataxia, syringomyelia, hemiplegia and injuries of the nerve trunks. The not infrequent presence of neurotrophic phenomena, such as marked muscular atrophy, glossy skin, and alterations in the nails and bones is of some significance, as also is the occurrence of numbness, tingling and severe pain involving special nerves or nerve trunks.

Acute rheumatism may occur in young women at parturition and lactation, or in older women at the menopause. The subjects become anemic, low-spirited and lose flesh and strength. Herberden's nodes, knotty enlargements of the proximal ends of the terminal phalanges of the fingers are more common in women than in men. Cancer occurs in such women with undue frequency. The most interesting feature of the malady is a general or marked swelling of the lymph glands, this occurring especially in those cases attended by fever. The spleen also is enlarged and palpable. Profuse perspirations are rather common. The heart is rarely affected. The subjects are weak, anemic and ill-developed.

CHAPTER 26

CANCER

Arthur Hunter, the life insurance expert, says, "There is no statistical evidence at the present time that the disease of cancer is transmitted by inheritance in mankind." In 1915 the death rate from cancer was 81.1 per 100,000. Cancer is the unwarranted proliferation of a good cell until it overcomes and breaks down the surrounding tissues and finally breaks through a blood vessel. It is a systemic disease, not contagious, not caused by a micro-organism, not wholly a result of traumatism, not hereditary in any appreciable degree, not much influenced by occupation, not altogether a disease of older years, affects no particular sex, race, class of persons, and is not confined to any location. It is thought to be of constitutional nature, immediately associated with dietary or nutritional elements. Once normal cells take on an abnormal action with a continued tendency to malignancy which invades and destroys contiguous tissue and is associated with a progressive anemia which destroys life. A disordered metabolism is thought to be the cause of the disturbed action of hitherto normal cells. There are great and significant blood changes in cancer, which indicate vital alteration in the action of the organs which form blood and so control the nutrition of the body and its cells. The bodily secretions indicate metabolic disturbances. Cancer is almost absent among aborigines and is uncommon among epileptics. In the opinion of some authorities the solution of the cancer problem lies in the internal secretions. Medical treatment lies mainly along the lines of elimination, which is always found to be faulty, both by the bowels and kidney. The kidney secretion is not defective in albumen or sugar, but there is always a faulty nitrogenous partition, and also sulphur. Indican is commonly in excess, often very greatly so, and the chlorides, phosphates and sulphates are deranged. There is in cancer an abnormal skin pigmentation, which can also happen in ductless glandular disease, the sugar and lime metabolism are often disordered, and the older the patient the slower the growth, while cancer is rare in the young but rapid in development. Disorders of the ductless glands are

very common in the families in which cancer occurs, and the fact that cancer is an atypical growth and a disorder of metabolism suggests its connection with the glands of internal secretion. Increased consumption of meat, coffee and alcohol is thought to cause cancer, and a specific nerve strain may affect it. A low diet and simple living ward off cancer.

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CHAPTER 27

RICKETS

Rickets is fundamentally a nutritional disease in which there exists some derangement of the metabolic processes. The usual age of onset is from three to eighteen months. There is not a tissue of the body that is not affected, bone, muscle, cerebrospinal, vascular and glandular systems all show certain changes. Primarily there occurs hyperemia of the periosteum, narrow, cartilage and bone, this is followed by excessive proliferation of the cartilage cells, then imperfect calcification. The calcium salts are reduced from 25 per cent to 75 per cent. There is demineralization of the bones, especially as regards calcium and phosphorus. The underlying cause is not known. *Still* thinks it is due to fat starvation, *Winter* thinks that protein causes gastric disturbances, and that, as a result, the salts in the food are not properly metabolized. *Holt* says where both fat and protein are low, rickets is more liable to result than where fat alone is deficient. Several investigators have proved by animal experimentation that disturbances in the internal secretions cause rickets; thus *Klose*, *Matti* and *Vogt* have shown that the extirpation of the thymus gland in dogs brought about changes in the skeleton of the animals similar to those observed in rachitic children. Congenital rickets improve under thyroid treatment. *Quest* found changes in the adrenals in rachitis. *Claude* and *Rouillard* showed that rickets may develop in animals born of parents one of which has been thyroidectomized fourteen days to three weeks before copulation.

Predisposing conditions are chiefly imperfect food and unsuitable hygienic surroundings. Rickets is seen among the children of the poor who are raised on an artificial diet containing large quantities of carbohydrate and small amounts of fat. It is rare in breast-fed children. In such cases it is only likely to appear when the mother begins work soon after delivery, or in children who have been nursed until the milk becomes of poor quality. Parental syphilis, tuberculosis and alcoholism are predisposing causes by reducing the child's resistance. Both sexes are equally affected.

The constant and characteristic lesions of rickets are to be found in the bones. Visceral changes are comparatively slight and

secondary. A rachitic bone when examined in a fresh condition is softer than normal. The actively growing portions are large and much more vascular than usual. The periosteum is thickened, and the bone beneath is spongy in appearance. In the later stages the bone is harder than normal and resembles ivory in density and texture. Frequently the bone is soft and porous and contains a considerable quantity of fat scattered through the substance. Islands of cartilage are more abundant than in normal callus. The effect of the changes is first to delay the growth of the bones and second to cause deformities. A rickety child has a small body and shortened limbs. The softness of the bones permits easy distortion under pressure as is best seen in the chest.

French observers especially attribute the marrow and other hematipoietic lesions to a defensive reaction against various toxic agents of bacterial or alimentary origin, and consider marrow lesions as primary and bone lesions as secondary to the enfeeblement of the organism as produced by the toxemia.

The lungs may show an acute or chronic bronchitis or bronchopneumonia. The spleen is frequently increased in size as well as the liver. The lymph nodes are often swollen and hyperplastic. The enlargement of the head in rickets is due to increase in thickness of the cranial bones. The muscles of the body are flabby and atrophied. Hydrocephalus is no more common in rickety than in normal children.

Symptoms

The symptoms of rickets are restlessness at night, sweating of the head, craniotabes and beading of the ribs,—the rachitic rosary. Craniotabes may best be demonstrated by gently palpating the posterior surface of the head with the tips of the fingers. Small areas, softer than the remainder of the skull, will be felt and the tissue may crackle under the pressure. The skull appears relatively large and the frontal prominences are well-marked. The anterior fontanel is larger than normal and its closure may be delayed even to the third or fourth year. The teeth are delayed, not appearing until the end of the first year or later. There are irregularities in the time and order of appearance and arrangement of the different groups of teeth. The thorax is frequently deformed, the so-called funnel breast and pigeon breast. The

abdomen is usually distended, the enlargement being due chiefly to the distension of the intestines with gas, aided by the weak conditions of the gut wall and abdominal wall. The spinal column is more flexible than in normal children, and has a marked kyphosis when they stand erect which disappears with a recumbent posture. The clavicle and scapulae are slightly curved. The pelvis is flattened laterally. This deformity is often permanent and renders the bearing of children impossible or difficult. The extremities very early show the characteristic enlargement of the epiphyses, especially the lower end of the radius, ulna and tibia. Other symptoms are increase in frequency of respiration, owing to the deformity of the chest wall, and gas distended intestines against the diaphragm. Laryngismus stridulus is not an uncommon complication, general convulsions are seen, and tetany is occasional. These symptoms point to an involvement of the thymus and parathyroid glands. A chronic gastrointestinal catarrh is usually present. The stools are either constipated or thin and watery. They are pale in color and contain an excess of calcium salts derived in part from the food and partly from the softening bone. The blood shows anemia of the chlorotic type with a moderate reduction of the red cells and a considerably lessened hemoglobin content. The skin is pale, eczema is not infrequent. Severe sweating is the rule. Subcutaneous fat is well preserved though the patient is soft and flabby.

The disease is self-limited and often disappears without treatment when the child is old enough to begin a mixed diet. Many of the severe cases are permanently deformed. Great care should be taken with children of parents who have previously borne rachitic children as the predisposition increases with each child.

The brain is functionally backward and the nervous system shows increased irritability even to the point of convulsions.

Rachitis is almost ubiquitous in idiots, very few, if any, of whom attain average height.

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CHAPTER 28

BEDSORES

Bedsore is a term applied to gangrene of the skin and underlying soft structures, resulting from the pressure of the body upon some object, usually the bed. Three methods of formation are recognized: (1) by an erythematous reddening of the skin, especially if the part has been irritated by urine or feces; (2) by a primary necrosis of the skin, seen in weak individuals; (3) by a phlegmonous inflammation with the formation of pus and undermining of the tissues. As much of the integument as is involved sloughs; the sloughs are cast off in shreds or as a whole; there remains an ulcer, often weak and indolent, with sloping edges, and without any tendency to heal. At times the sloughing does not stop at the integument, but all of the soft parts, and even the bony structure, become involved in the necrotic process, leaving a lesion revolting in appearance and disgusting in odor.

In the etiology of bed-sores pressure plays the most important rôle. Predisposing causes which hasten the development are: (1) any circumstance which lowers the vitality of a part of the body; (2) the presence of fluids or substances which irritate the skin; (3) diseases or injuries which prevent movement of the patient's body; (4) trophic disturbances. In the first class are typhus, and typhoid fever, phthisis, scurvy and any long-continued disease. Urine and feces are very common irritants, also other foreign substances.

The question of the rôle played by the trophic nerves in the causation of bed-sores cannot be discussed as their presence in the human body has not been proven. The rapidity with which the skin sloughs in injuries of the central nervous system (acute bed-sore of Charcot) makes it evident that nutritive changes have taken place in such parts, which can be explained only by assuming that the nervous power controlling the nutrition of the part has been lost as an effect of the central lesion. This view is substantiated by the tegumentary lesions seen in cases of dementia paralytica in the last stages.

Bedsore is rare in epilepsy.

Reference

✓ Handbook of Medical Science.

CHAPTER 29

HERNIA

Hernia is a protrusion of a viscus from the cavity in which it is normally contained. The common term is "rupture." Congenital hernia may occur at one of the openings of the abdominal wall normally present in fetal life, which has not become closed at the time of birth. They occur at the points where the abdominal wall is relatively weak. Hence arises the anatomical classification of hernia. The parts are (1) the sac, (2) the contents.

Weaknesses in the abdominal wall predisposing to hernia are undoubtedly inherited. Macready estimates that 25 per cent of patients with hernia give an ancestral history.

About six males to one female suffer from hernia. This is explained by the great frequency of inguinal hernia in males; due to the enlargement of the inguinal canal, and by the nature of their occupation. Except for those which occur in infancy, most hernias appear in the active period of life from 15 to 50 years.

Elongation of the mesentery, although generally given as an etiological factor in the production of hernia, is rather a concomitant result, with hernia, of causes such as weakness and laxity of the abdominal wall. The exciting causes are: (1) occupation necessitating violent muscular efforts, (2) strains, as lifting, coughing, sneezing and parturition, (3) conditions causing stretching of the abdominal wall as pregnancy, ascites, obesity, (4) atrophic changes as senility, (5) traumatism resulting from cicatricial tissue or in the destruction of nerves thus causing paralysis and atrophy of the muscles.

Umbilical hernia is a constant finding in the higher grades of sporadic cretinism.

CHAPTER 30

PHYSICAL STIGMATA

Quoting from Church and Peterson:

“ The indications of degeneracy in an individual are termed the stigmata of degeneration, or stigmata hereditatis. They may be defined as anatomical or functional deviations from the normal, which in themselves are usually of little importance as regards the existence of an organism, but are characteristic of a marked or latent neuropathic disposition. * * * These stigmata are vices of functional and organic evolution. The deviations from the normal may be in the way of excesses or arrest of development. They must be distinguished from the deficiencies or deformities produced by accidents at birth or by disease. * * * The psychic stigmata are always characterized by want of balance or lack of proportion between certain undeveloped or excessively developed faculties and other faculties which are normal. Defect of moral sense, of attention, of memory, will, judgment, or unbalanced excess of musical or mathematical aptitudes may be cited as instances of psychic stigmata. Hence the three following divisions may be made of all the degenerative indices: (1) Anatomical stigmata; (2) physiological stigmata; (3) psychic stigmata:

Anatomical stigmata

cranial anomalies	anomalies of the ear
facial asymmetry	anomalies of the limbs
dental anomalies	polydactyly
anomalies of the tongue and lips	syndactyly
anomalies of the nose	ectrodactyly
anomalies of the eye	symelus
flecks on the iris; strabismus; chromatic asymmetry of the iris; narrow palpebral fissures	ectromelus
albinism	phocomelos
congenital cataracts	excessive length of the arms
microphthalmus	anomalies of the body in general
pigmentary retinitis	herniae
muscular insufficiency	malformations of the breast, thorax
	dwarfishness
	gigantism

Anatomical stigmata — Continued

anomalies of the body in general — Continued	anomalies of the genital organs
infantilism	anomalies of the skin
feminism	polysarcia
maculinism	hypertrichosis
spina bifida	absence of hair
	premature grayness

Physiological stigmata

anomalies of motor function	anomalies of speech
retardation of learning to walk	mutism
tics	stammering
tremors	defective speech
epilepsy	stammering
nystagmus	stuttering
anomalies of sensory function	anomalies of genito-urinary function
deaf-mutism	sexual irritability
neuralgia	impotence
migraine	sterility
hyperesthesia	urinary incontinence
anesthesia	anomalies of instinct or ap- petite
blindness	uncontrollable appetite (food, liquor, drugs)
myopia	merycism
hypermetropia	diminished resistance against external influences and diseases
astigmatism	retardation of puberty
Daltonism	
hemeralopia	
concentric limitation of the visual field	

Psychic stigmata

insanity	precocity, one-sided talents;
idiocy	disequilibrium
imbecility	eccentricity
feeble-mindedness	moral delinquency
pavor nocturnus	sexual perversion."

G. Stanley Hall states:

“Degeneration of mind and morals is usually marked by morphological deviations from the normal. Face, jaws, mouth, nose, arms, feet, legs, trunk, neck, head and its parts may be too small or too large in proportion to the rest. Among functional deviations are abnormal innervation on one side or of special muscles or of vasomotor nerves, developmental irregularities, in dentition, in learning to walk and sit, enuresis, inclination to epileptic and other attacks, incongruity between age and appearance; while the psychic stigmata following Meyer’s *classification are abnormal habits, ideations, actions, sex psychoses, emotional attitudes, egotism, disequilibration, imperative ideas, associated movements, explosive activity, periodicity, etc. Clouston says all sorts of postponement of developmental processes and all forms of asymmetry about the head and face should be considered as moral danger-signals.”

In Warner’s opinion:

“ * * * defective physiognomy in make and proportioning of the features is apt to be accompanied by low brain power with defective nutrition in after life.”

Tic

Tic occurs in predisposed individuals who usually show other indications of mental instability. An abnormal mental state exists in which there is an inability to control the will. Movement may be clonic (unduly rapid) or tonic (with prolonged duration). The onset is frequent at puberty. Where there is psychical predisposition, trauma and imitation may be noteworthy factors, and infectious diseases may usher it in. Heredity is of the utmost importance, for mental instability is usually evident in the family history. Charcot maintains that “in every case of tic, however trivial, especially if attended with phenomena such as coprolalia, a hereditary element is discernible.” Tic may affect any muscle.

○ * American Journal of Insanity. Jan. 1896.

Its usual forms are

blinking
grimaces
wrinkling forehead
nodding
tossing of head or arm
salutatory
shoulder jerk
respiratory phenomena
sobbing
moaning
sighing
coughing
whistling

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Obesity

A factor in obesity is the disturbance of the internal secretions, especially of the thyroid and pituitary glands, the testes and ovaries. Heredity of course plays its part, but far less often and in a much smaller way than has been supposed.

The symptoms of obesity, in addition to the great avoirdupois, are that the patient tires easily and on slight exertion becomes short of breath. The preponderance of carbohydrates gives rise to gastric distress; indigestion and constipation follow. Later, signs of absorption appear, and headachè, migraine, neuralgia and even neuritic pains are common, as also joint pains usually termed rheumatism.

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Stigmata in epilepsy

Turner found that in epilepsy the more pronounced the deformity is the more enfeebled is the mentality. In 200 epileptics he found

Facial asymmetry	Abnormal palates	Abnormal ears
42 per cent.	41.5 per cent.	23 per cent.

Anatomical evidences of a hereditary degenerative character are: Chromatic asymmetry of the iris, congenital cataracts, anomalies of the limbs such as polydactyly, syndactyly and disproportionate length of arms. Also there are cerebral anatomical stigmata by aid of which the hereditarily or congenitally defective brain may be recognized, as stammering, ties, etc. Other stigmata are astigmatism, dwarfism and gigantism of the teeth, longitudinal striation of the teeth.

According to Montessori, the Italian authority:

“Children always show a greater number of individual malformations than adults. Table shows: only 4 per cent of the laboring class are without malformations, while the peasantry and the well-to-do have from 18 to 14 per cent. Among normal adults there is a preponderance of persons having 1 to 2 stigmata; while those having 3 or 4 stigmata are more frequent than those without any at all.

“Excepting for a few laborers, there are no normal persons with 5 or 6 malformations; in fact, this is the number of coexisting malformations that is held to be the test of degeneration, the sign of an abnormal morphological individuality.”

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CHAPTER 31

BIRTH AND EARLY DEVELOPMENT

The infant at birth weighs from 7 to 10 pounds.

	Male	Female
Average length in inches.....	19.34	18.98
Average weight in pounds.....	7.55	7.23
Average girth of chest in inches.....	13.25	12.65
Average circumference of head in inches..	13.95	13.57

The size of the head is of interest, for small-headed infants are less likely to live; the brain is the principal seat of vitality.

At nine months old the fontanelle can still be felt, the head is still open and growing fast, it measures about 17½ inches in circumference; at twelve months, 19 in. and at seven years 20 to 21 in. After three years old a circumference of 19 in. is too small.

During the first year a child grows about 9 in. in length and gains about 13 lbs. or increases less than one-half its length, but much more than doubles its weight. During the second year the child should grow in height a trifle over five inches and gain four or five pounds, and by two and a half years of age should have about one-half its adult height and nearly one-fifth its adult weight.

The senses are the only gate at which the world enters the mind of man. Only a few days pass before newly born children distinguish sour, sweet, bitter, salt. Mr. Bell found a desire to taste everything that could be carried to the mouth, regardless of its edible qualities—grass, plants, soap, worms, bugs, ink, — one hundred and eighty different objects being enumerated; but this desire was already declining at the age of four or five. Later, he thought, came a propensity to make and taste unusual mixtures of food and drink, or to taste foods in their stages of preparation — one hundred and twenty articles being enumerated — culminating between seven and ten. Adolescent curiosity vents itself on new articles in a bill of fare, new flavors, etc. Hall says: “The true beginning for a psychology essentially genetic is hunger, the first sentient expression of the will to live, which with love, its other

fundamental quality, rules the world of life — man is, physically considered, what he eats and what he does with it, or better, what he completely digests. Food is the first object of desire, and all fins, legs, wings and tails were developed either to get food or to escape finding a grave in some other creature's stomach. Low forms of life that cease to be sessile do so to get food, which is the chief end of the worldwide struggle for survival, where the law, 'Eat or be eaten,' is imperative — the first laugh, if Spencer is right, was in prospect of food, and says, when interpreted phyletically, 'This is good enough to eat.' From the standpoint of the higher metabolism, every cell and tissue has its own specific hunger, and what we call hunger is a symphony of many parts or a net algebraic result aggregated from the specified hunger of all the tissues and cells. In a sense every disease is due to cell hunger, and old age and death are progressive starvation. Most of the diseases of middle and later life are probably due to avoidable errors of diet."

It is probably possible for the child, by the sense of smell alone to distinguish the breast of the nurse from that of his mother, and the milk of the cow from the milk of the breast, before it touches his lips, as early as one day after birth. At any rate the normal child can smell many things rightly when a few hours or, at most, a few days old.

Every child when just born is completely deaf, and sometimes several days elapse before the tympanum, with the auditory ossicle, is capable of conducting external impressions of sound properly to the brain, which is as yet by no means sufficiently developed for hearing. And even when these days have passed, the hearing must be called very bad. A difficulty of hearing continues to exist normally for a long time.

When born the child is quite incapable of seeing, but there exists already sensibility to light.

The development in the case of children born from four to six weeks too soon is generally behindhand — and the upper back part of the cerebral cortex seems to be most in arrears.

In regard to their color-sense, all children who have not had special training in this direction show great uncertainty up to the end of the second year, and even in the third they often waver

in judgment to such a degree that they might be supposed to be color-blind. But where this ignorance of colors continues into later life, it is very often the result not of organic defect in the child but of neglect on the part of the parents.

At birth mental freedom is wholly lacking. Man does not inherit freedom, nor can it be given him; he must achieve it for himself. The degree in which it is attained is, in general, a pretty good measure of the degree of mental development and organization that has been reached by the individual.

It is a general law that the child's activity up to the age of four or five months gives no evidence of a real moral sense, still less of the intentional or willed. The reflex mechanism, automatic or instinctive, is organized at the outset; thoughts and will take possession of it later.

According to Thorndyke we may conveniently divide growth into the following year periods:

Birth to 1 plus or minus $\frac{1}{4}$ —Infancy	
1 plus or minus $\frac{1}{4}$ to 5 plus or minus 1—Babyhood	
5 plus or minus 1 to 12 plus or minus 1—Childhood	
12 plus or minus 1 to 14 plus or minus 1—Transition	
14 plus or minus 1 to 18 plus or minus ?—Adolescence (early)	
18 plus or minus ? to 25 plus or minus ?—Adolescence (later)	

Nerve signs

In regard to nerve signs Warner says:

“The general conditions of make and power of brain are ascertained by observation of the ‘nerve-signs,’ which are movements, action, balance, gestures, or other motor acts.

“The child who, when spoken to, suddenly goes through a number of extra movements, excited but not controlled by the spoken word, is liable, at the same time, to mental confusion and may make some absurd mental errors.

“Indications of brain-disorderliness are slouching, listlessness, inaccuracy in action and in looking,—points that may generally be removed by good physical training, whereupon improved mental action would probably follow.

“As a sign of defect, probably permanent, in the nerve system, there is excessive and coarse action of the muscles of the forehead, causing horizontal and vertical furrows.

"A further sign of exhaustion and probable liability to headaches is observed in marked fullness under the eyes.

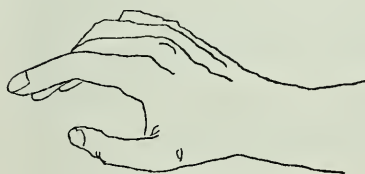
"The signs of nerve exhaustion are: over-mobility; the arms several times thrown about, often with the left hand clenched, fidgetiness. There may be fullness under each eye, indicating probably a sufferer from headaches."



Straight hand



Nervous hand



Energetic hand



Straight hand with thumb dropped



Hand at rest



Hand in fright.



Convulsive hand

From Francis Wagner's Study of Children

According to Montessori, repeated attacks of infective diseases even though they are survived, denote organic weakness, with facile predisposition to infective agencies—in other words, deficient power of immunity. Prolonged intestinal maladies or typhus in the early months (denutrition from pathological causes or exhaustive diseases) may, in themselves, be the cause of the child's enfeeblement and its consequent arrest in development.

Atrophy of the thymus gland, says Sajous, is always found in infantile atrophy. In marasmus the thymic changes are due to the absence in the food of agents which prevent thymic atrophy.

Instincts

Colvin writes of instincts:

“Certain complex reflexes are given the name of instincts. * * * When checked they develop into emotions. Instincts further differ from reflex activities in the fact that while they are inherited they are not necessarily present at birth, but may appear during the course of the individual’s development. For this reason it is often difficult to distinguish them from habits, which likewise put in their appearance from time to time, and are not present at birth.

“The great difference between instincts and habits is to be found in the fact that the latter are acquired, while the former are inborn. Habits are the result of education, but instincts are inherited.

“An instinct may be defined as a complex set of reflexes working together for a common result, of which, however, the individual possessing the instinct is often unconscious.

“Some of the most important human instincts are, however, fairly well agreed upon. They include fear, anger, sympathy, affection, play, imitation, curiosity, acquisitiveness, constructiveness, self-assertion (leadership), self-abasement, rivalry, envy, jealousy, pugnacity, clannishness, the hunting and predatory instincts, the migratory instinct, love of adventure and the unknown, superstition, the sex instincts, which express themselves in sex love, vanity, coquetry, modesty, and closely allied to these, the love of nature and solitude, the æsthetic, the religious and the moral emotions, and the appreciation for the incongruous and the comic. The majority of these instincts are very important in the education of the child, whether he be precocious, normal or feeble-minded.

“Fear of physical discomfort is sometimes a wholesome corrective for improper conduct. It is, however, to be kept in mind that punishment in the form of marked social disapproval is one of the strongest inhibitions which can motivate conduct, and this form of punishment should be employed whenever it can be made effective.”

Unlearned or native reactions or instincts

(From James' Principles of Psychology.)

Common physiological functions, such as breathing, sleeping, digesting, etc., etc.

All the so-called "reflexes," such as sneezing, snuffling, snoring, coughing, sighing, sobbing, gagging, vomiting, hiccoughing, starting, moving the limbs when tickled, touched or blown upon, etc., etc.

Sucking

Biting an object placed in the mouth

Chewing and grinding the teeth

Licking

Making characteristic grimaces over bitter and sweet tastes

Spitting

Clasping things which the palm of the hand touches

Grasping at certain objects, e. g. small, bright, or moving objects

Carrying to the mouth the object when grasped

Pointing

Making a peculiar sound expressive of desire

Crying

Protrusion of the lips

Turning the head aside

Holding head erect

Sitting up

Standing

Creeping

Walking

Following objects going away slowly. (?)

Running from objects coming toward the child fast. (?)

Climbing

Vocalization; that is, the general babbling of infants

Emulation or rivalry; that is, the tendency to do what others are doing in such a way as to get what they get

Pugnacity

Resentment

Sympathy (?)

The hunting instinct; that is, the tendency to catch, play with and tease small living things

General physical activity; that is, the general tendency to move in all sorts of ways, not to keep still, to do things to things

General mental activity; that is, fondness of having ideas, pleasure at the presence of feelings or thoughts, delight in mere thinking, irrespective of the consequences

Fear of noises

Fear of strange men and animals

Fear of black things

Fear of the dark

Fear of open places

Fear of high things

Fear of spiders and other vermin (?)

Fear of snakes (?)

Fear of solitude

Acquisitiveness; that is, the tendency to take what one sees.

Miserliness; that is, the tendency to keep what one takes, to resist attempts to take away anything one has had about him

Unreasoning collecting and hoarding of objects

Fear of exposure; i. e. the tendency to feel comfortable and to repose when sheltered.

Motor coordination

Want of control of the hand through the eyes may produce mistakes taken for mental faults.

Coordination may be defined as the ability to accomplish by means of muscular contractions and with the least possible expenditure of energy, a definite purpose or assigned task. It means more than the simultaneous or successive synergy of two or more muscles or groups of muscles. It requires a delicate adjustment of the muscular innervation necessary to move a member of the body at a given rate through a given distance. There is reason to believe that control of this muscular innervation is dependent upon the will, and that volitional activity is closely associated with mentality.

Important as the functions of the brain are, and much as we desire to study its action, there is only one way in which we can watch the effects of its working, and that is by watching the movements which it produces in the parts of the body by its action on

the muscles. All movements in the body are produced by the action of the nerve system on the muscles; this is very important to remember. Hence, movements, the outcome of movements, and mobile expression are signs of brain-action and the brain-condition.

Accuracy of movement is a very different function and marks the volitional control of the will, and the inhibition of irrelevant spontaneous, reflex, or automatic movements. It involves conscious effort and attention. The same motions performed with precision by the lower reflex centers are often at first performed very imperfectly by the higher conscious and self-directed powers.

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CHAPTER 32

THE HEAD

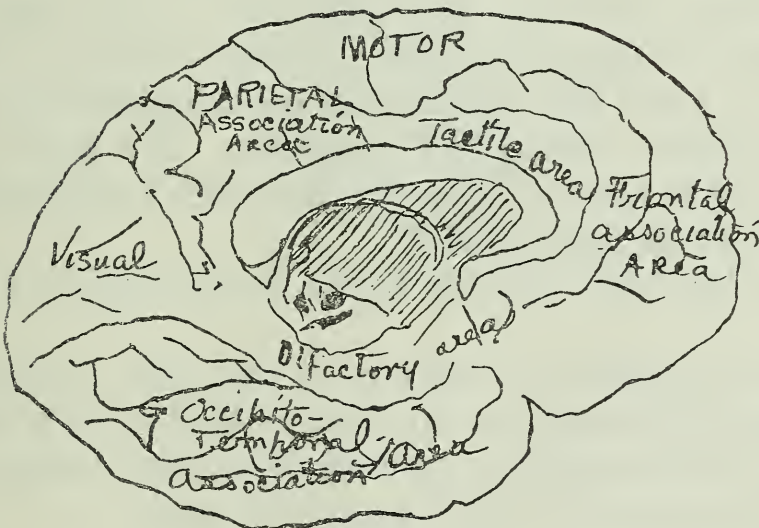
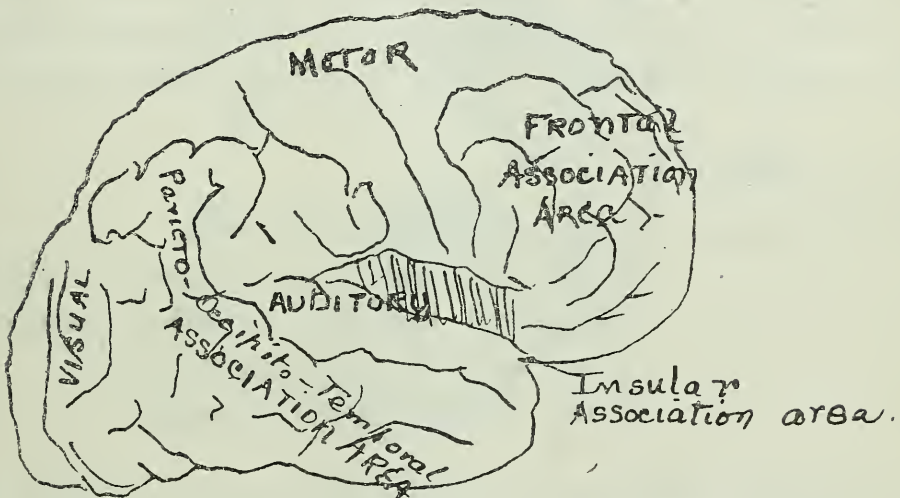
The head, being the most significant part of the body, is also the part which the field worker can study while talking with persons in the field. With good scientific insight a great deal can be learned about families by studying their heads and the subordinate parts. The head registers abnormalities of growth in its bony formation and contour, character and intelligence in its physiognomy; it is the seat of the most important senses, and indicates the state of bodily nutrition, nervous status, health and happiness. A field worker who can detect and record clearly all that the head and face tell of heredity, life history and social condition of persons interviewed has already a good start on the person's social and mental status.

Head form is relatively uninfluenced by climate and food, and is one of the clearest of all permanent, hereditary differences. The best of the head measurements is perhaps the ratio between length and breadth, above 80 being usually classed as brachycephalic or broad-headed, and below 75 being classed as dolichocephalic or long-headed. Ripley concludes that the basal population of Europe in the stone age was composed of long heads, the Eskimos being a relict of the old Cromagnan stock. Round heads came in from Asia, slowly driving the long heads upland and producing the vast diversity in small space that characterizes the western part of the Old World.

Cephalic index

From the measurements of the length and width of head, the *cephalic index* may be computed readily by multiplying the width by 100 and dividing by the length. This index is considered one of the most important of those used in anthropometry. By it the type of head may be determined as follows: if the index is less than 75, S. is long headed (dolichocephalic); if 75-80.9 S. is medium (mesocephalic); if 81-86.9 S. is broad headed (brachycephalic); if 87 or over, S. is excessively broad-headed (hyperbrachycephalic.)

SPECIAL AREAS IN THE BRAIN



(After Flechsig, modified by Shafer in Pillsbury's Attention, p. 228)

CHAPTER 33

EAR

The external ear presents a constant fruitful field for the study of neuropathic stigmata. In the abnormal ear there may be adherent lobules, excessive conchoidal development, abnormal thinning of the margin, deformities of the antihelix, the Morel ear, etc.

Ears of epileptics

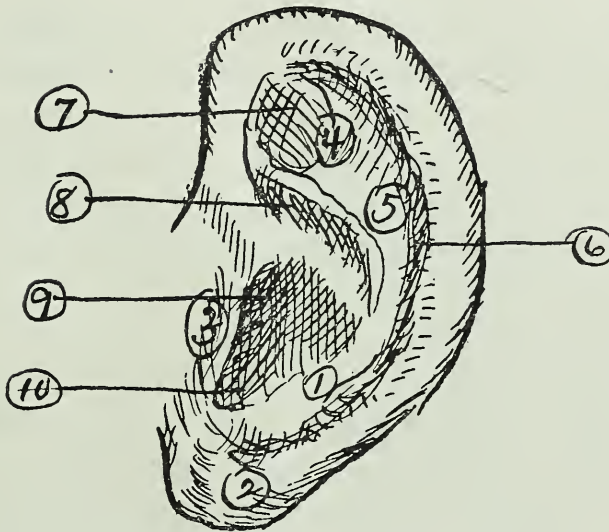
Of 200 epileptics, 65 per cent. had normal ears
10 per cent. had abnormal ears as to shape
8 per cent. had abnormal ears as to size
5 per cent. had asymmetrical ears
23 per cent. had aural stigmata

In epileptics abnormalities of the ear are more common than with normals. Defects of the lobule are most frequent; they may be large and fleshy, small or absent. The pinna may be small, thin and circular resembling the chimpanzee, or the whole ear may be large and outstanding with a marked convexity as seen from behind. There may be numerous minor malformations of the helix, antihelix, tragus and antitragus. The hearing of epileptics is not so acute and does not detect such fine differences as in the case of the feeble-minded.

In infants hearing is virtually normal on the third or fourth day.

One can test hearing by a watch or by the voice. In using a watch ascertain previously how far from the head it can be heard by persons with good hearing; use a measuring tape, holding one end against the ear, and the other against the watch.

NORMAL EAR



1. Antitragus
2. Lobulus
3. Tragus
4. Crura Furcata
5. Antihelix
6. Fossa scaphoidea
7. Fossa ovalis
8. Fossa cymbae
9. Fossa concha
10. Incisura intertragica

CHAPTER 34

PALATE

There seems to be some condition in the feeble-minded that favors the development of the gothic palate. Irregularities of the palate are closely allied to the asymmetries of its structure. There may be uneven inclinations of the two sides. A large number of the asymmetries and irregularities are no doubt acquired and due to pathological conditions of the floor of the nose. A small amount of asymmetry may be due to asymmetry of the whole face.

High and narrow palates are due to the premature occlusion of the palatal suture. The merely high palate is undoubtedly of hereditary origin. Narrowing may be confined to the anterior third, resulting in a V-shaped arch. Excessive narrowness in front is almost confined to the upper arch and frequently associated with prognathism; its causes are no doubt hereditary. It is more common in females. The polygonal or angular character is generally restricted to the lower arch; but is found very occasionally in the upper arch. Late eruption of the canines and large teeth may have an influence. A lower polygonal arch is found in 8.3 per cent. of the male and in 18.9 per cent. of the female feeble-minded. In 61.5 per cent. of the males and 45.5 per cent. of the females it is associated with prognathism of the upper arch. This is significant. The prognathic arch is considered by some as decidedly a character of organic inferiority or of reversion. Thickness of the arch in an adult may be the persistence of an infantile character or a pathological condition. Massive arches predominate in the male feeble-minded and they are much more frequent in the young than in the older, showing that the infantile condition is prolonged and may disappear later.

All of the lower human races and animals are prognathic. As we approach man there is a steady regular increase of orthognathy of the alveolar arches, or approach to the vertical. In the male the palate is slightly broader and lower than in the female. Abnormalities of the palate are numerous in white people who are normal and healthy. There are many proofs that heredity plays a large part in abnormalities of the palate, but it is difficult to decide whether abnormalities are inherited or acquired, as a large

per cent. of those in children are of rachitic, syphilitic, tubercular and neuropathic origin.

The Gothic arch is a pointed arch usually associated with narrowness. It is found in 10 per cent. of males and 2.2 per cent. of females at the Syracuse State Institution for Feeble-minded Children.

The torus is an exostosis along the suture. Many of these elevations look as if they were produced by an attempt at a further lateral growth of the palatal processes after these could no more widen from some cause or other. The new bone seems to be deposited in the direction of least resistance. Trophic irregularities may be allied to a rachitic condition of the osseous system in general. Rachitis causes atrophic retardation in the bones, and this retardation is followed by an augmented and often more or less irregular deposition of the bony tissue and such phenomena would clearly account for the ridges along the palatal sutures, where osteotrophic processes are more active than in any other portion of the palate.

Palatal ridges are found in 3.8 per cent. of male and 10.6 per cent. of female feeble-minded. Among normals the rate for both sexes is the same. The abnormality is much more frequent among the feeble-minded than among the normal. Clefts of the posterior part of the mouth are common among the feeble-minded. The causes of cleft palate are hereditary and of a degenerative nature.

The most frequent abnormalities of the uvula are lateral. Deflected uvula is more common in the feeble-minded than in normals. In examining the patient should be asked to swallow once or twice to see whether the position is not changed. A striking thing is the increase in deflections in females during adolescence. Deflection may be explained by:

1. Paralysis (common in the feeble-minded)
2. A congenital deficiency, partial or entire, of one of the lateral muscles of the organ.
3. Pathological conditions, as inflammations and infiltrations.

CHAPTER 35

TEETH

Infants are someeimes born with teeth. The first tooth generally appears at six or seven months. The teeth usually erupt in groups with considerable regularity. There are so many normal variations, however, that it is difficult to lay down any hard and fast rules. In a general way the first, or temporary teeth, erupt as follows:

2 middle lower incisors.....	6- 8 months
4 upper incisors	8-10 months
2 lateral lower incisors	12-15 months
4 anterior molars	12-15 months
4• canines	18-20 months
4 posterior molars	24-30 months

Delay or irregularity in cutting the teeth may be due to rickets or may be merely an individual or inherited peculiarity.

The first of the second or permanent teeth are the so-called “ six year old ” molars, which appear at this time behind the posterior molars of the first dentition. The permanent teeth then begin to replace the temporary teeth, the bicuspid's taking the place of the temporary molars, after which the permanent molars erupt posteriorly. The permanent teeth erupt in a general way as follows, the lower teeth usually preceding the upper:

4 first molars	6 years
4 middle incisors	7 years
4 lateral incisors	8 years
4 first bicuspid's	9 years
4 second bicuspid's	10 years
4 canines	12-13 years
4 second molars	12-15 years
4 third molars	17-25 years

Excessively large teeth appear mostly in beings of a congenitally abnormal physical status. Probably these are more nearly a case of reversion than small teeth. Very large and very small teeth are not met with in the same individual. Diminutive teeth were found in 3.1 per cent. of the male and 3.9 per cent. of the female patients at the Syracuse State Institution for Feeble-minded Children. Teeth of excessive size were found in only five instances at the Syracuse institution. In two out of the five cases it was the middle upper incisors which were excessive, in two others it was the canines and in one it was both.

A projecting portion was observed in the canines of several persons, and in these same persons there were indications of disorders of physical evolution or nutrition during growth. The ring below the summit in these defective canines possibly represents a period of constitutional derangement in the person's life, a period of malnutrition allied to rachitis or some similar process. The tubercles on the summit of the teeth are not new formations but those parts of the normal teeth which represent those of the original cells of the second canines which have not been affected by the period of the person's abnormal condition. The lower parts of the canines below the constriction, are equally parts developed during the individual's normal condition or during a period of restitution.

Diastemata is the term used to signify all unusual natural spaces between the teeth. Several conditions may cause this, a large gum with normal teeth, normal gum with small teeth, a congenital lack of some teeth, atavism. In the Syracuse State Institution for Feeble-minded Children diastemata of all kinds were found in 17.5 per cent. of the males and 17.2 per cent. of the females.

Prognathic teeth are those which slant forward more than normal, and are sometimes caused by the child's sucking its fingers. They are marked in negroes and the inhabitants of the antipodes. Invergent teeth are those slanting inward. In the white race the upper teeth are more likely to be prognathic. This may be due to the greater freedom with which the upper teeth may become slanting owing to the overlapping. The lower teeth are likely to be

prognathic when the lower jaw is too large or too small. The significance is greater when both jaws are prognathic. In males upper prognathism was found in 2 per cent., and lower prognathism in 1.3 per cent. In females there was one case of double prognathism, three cases of upper and one of lower prognathism. This refers to children in the Syracuse institution. Out of 38 males between 15 and 20 years of age only 3 and out of 41 females only 8 were found with any wisdom teeth, while in 68 or 86 per cent. no wisdom teeth had appeared. The earliest age at which any of the third molars made its appearance was 15 years in both sexes. Before the age of 18 years only two such teeth appeared in the males and in eight cases in the female. On the other hand there were a number of cases in which the wisdom teeth did not appear until after the age of 30 years. Occasionally other teeth have been found wanting besides the molars. For example in a boy of 14 both upper and lower second incisors had not yet appeared.

There is no substantial explanation of invergent teeth. They are not infrequent in apes, monkeys and lower animals. The jaws of white men tend to diminish in all directions but they tend especially to shorten. The consequences of the shortening of the jaws are various crowdings of the teeth, for the teeth are not diminishing in size in direct proportion to the jaws. The crowding affects generally some part of the anterior two-thirds of the dental arch and the third molars. Crowding is somewhat more frequent in the male than in the female.

It is considered that the teeth of the feeble-minded and normal are the same previous to the age of 17 years. After that those of the feeble-minded are much worse. How much this is due to lack of care is uncertain. As the feeble-minded advance toward the age of 40 years, they shed their teeth like a normal person of 60 or 70, they have a premature dental senility, with only now and then an exception. Caries in teeth are most common in white civilized man. Vitality and resistance decrease with the advance of evolution. Teeth get better as we go down in the line of evolution. Black men have much finer teeth than white men.

The alveolar arch is symmetrical and but a little thicker than the teeth at the point of insertion into the gum. It presents a

moderate inclination forward. Deviation of its form and symmetry should be considered. In the Syracuse State Institution there were irregularities in the alveolar arch in 3.2 per cent. of 157 male cases, and in 4.5 per cent. of 176 female cases. Excessive narrowness in front is frequently associated with prognathism and is confined almost exclusively to the upper arch. The proportion of normal arches is small, especially in the female, where abnormal arches are to normal in the proportion of three to two. It is more evident in adults than in children. Arches may be too high or too low, excessively narrow in front, polygonal or of different thickness. Some of the irregularities are due to traumatic causes or inflammatory processes, others to a neurotrophic origin. Rickets may be the cause. The alveolar arch is low in children to the 7th year (during the first dentition). In later life there is an absorption of the arches. The low alveolar arch represents an infantile condition and implies an arrest of development. The very high arch is in every way closely related to the prognathic arch.

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CHAPTER 36

BREATHING

Mouth breathing is an indication of nasal obstruction due to adenoid vegetation or deflected nasal septum. By use of a tongue depressor the size of the tonsils may be readily examined, and in some cases the back wall of the throat can be seen. Throat and mouth conditions are important and should be ascertained.

Hypertrophic lymphatic tissue in the vault of the pharynx is a very frequent and noticeable disturbance among mental defectives. This tissue is normally present surrounding the crypts in the mucous membrane of the pharynx and in the pharyngeal tonsil and it is only in its overgrowth that it becomes pathological. The direct consequence is obstruction of nasal breathing. This condition probably aggravates the feeble-mindedness, through a sluggish lymph circulation at the base of the brain, which in turn affects the functional activity of the higher centers. *Retzues* and *Axel-Key* have demonstrated the close anatomical relations between the lymph channels and the base of the brain.

CHAPTER 37

SPEECH

Defects of speech are common among the feeble-minded, insane and epileptic. There is the scanning speech of multiple sclerosis, syllable omission in the general paralysis of the insane, stuttering, lisping, tongue tie and aphasia. Speech changes are marked in chorea.

Scripture has observed that practically all stutterers habitually speak in a monotone and lack the power of speaking rhythmically. *L. P. Clark* has described the plateau speech of epileptics, which is also monotonous, and lacks curves of inflection. *Browning* associates stammering with an enlarged thymus. The thymus is so located that if enlarged it can easily press on the trachea.

The chief purpose of the larynx is phonation. The voice is a moving column of breath set in vibration by its own impact upon the vocal shelves and reenforced by its diffusion through the various resonant chambers into the surrounding atmosphere, and therefore it follows that phonation is the process by which the column of breath is formed, set in vibration and diffused, and a description of this process must include the necessary respiratory movements and at least a reference to the resonant chambers, as well as a description of the action of the larynx itself. The respiratory movements of phonation are different from those of ordinary breathing. The one is active, the other passive.

The character of the impaction of the column of breath upon the vocal shelves is an important factor in the regulation of their vibrations. It has been shown by actual demonstration that the rapidity of the vibratory excursions of the vocal shelves is increased and the pitch of the voice heightened by an increase in the rate of motion of the column of breath. This is true, in part at least, because the increase in the rate of motion is attended by an increase of expiratory effort, and a corresponding increase of pressure within the column of breath, the tracheal tube being somewhat elastic, this pressure tends to enlarge the column of breath in the trachea, and as this is forced through the smaller opening of the cricoid cartilage, it carries its anterior portion

upward toward the thyroid, and its posterior downward, thus increasing the distance between the anterior and posterior attachment and becoming a direct longitudinal tensor of the vocal shelves.

On the other hand, if this tendency of the column of breath to render the vocal shelves tense during its rapid and forcible movement is resisted by the contraction of the internal thyroarytenoid muscles, the result is a greater intensity or loudness of voice. In this way the column of breath becomes an important factor in regulating both the pitch and the intensity of the voice.

The respiratory movements of phonation, therefore, are definite and active. It is by means of the depressor and elevator muscles that the column of breath may be controlled with the necessary accuracy and that the requisite tension may be given to the drum-like walls of the thorax for the purpose of giving resonance to the voice. The column of breath is, therefore, compressed and its rate of motion through the glottis regulated with great precision.

It is quite possible that the extrinsic muscles of the larynx may assist the intrinsic muscles in rendering the vocal shelves tense. As to this opinions differ.

The function of the larynx in phonation is to furnish and control the shelves, the vibration of which is the first cause of the sound of which the voice is made. These shelves are merely deductions or folds of the lining membrane of the larynx reflected over the thyroarytenoid or so-called vocal muscles, the lining membrane of that portion of the shelves which forms the rima glottidis having been transformed by the exercise of its function into white fibrous tissue.

The various changes in the laryngeal tones of the voice depend upon certain changes in the physical condition of the vocal shelves, and are somewhat similar to those governing the vibration of strings; the three physical changes in them which govern tone being changes in length, weight and tension. The length and weight of the vocal shelves vary somewhat in different larynxes. In a violin the tone depends, not upon the vibration of the strings but on the effect of these vibrations upon the whole instrument. So the human voice is the result of various complex conditions.

Stuttering

The most frequent cause of stuttering is a nervous shock. It is a typical psychoneurosis that may, perhaps, be appropriately called a "general anxiety neurosis."

A very frequent cause of stuttering is mental contagion by intentional or unintentional imitation. A boy thinks it fun to mock a stutterer, and ultimately finds that he himself cannot stop stuttering. Stuttering frequently appears after whooping cough, also after scarlet fever, measles, intestinal troubles, etc. The cause seems to lie in the condition of exhaustion. The most striking symptoms are cramps and spasms of the muscles connected with speech. Abdominal cramps are nearly always present. Cramps and spasms of the muscles of enunciation are usually the most apparent ones.

A marked symptom is a cramp of the muscles of the larynx that reveals itself in a monotonous, hard, and often husky laryngeal tone. In thousands of stutterers this symptom was never once absent.

Other symptoms are shown in the excessive rapidity of speech, in the superfluous sounds or grunts that the stutterer may use to start himself, in the contortions of the muscles of the face or other parts of the body, in the huskiness of the tone, etc. A never failing symptom is the lack of confidence of the patient in his ability to speak correctly. In many cases the thought, "Will I be able to say that word?" is sufficient to make it absolutely impossible for the person to say it. The stutterer always lives with the fear that his speech may "go back on him."

Most stutterers are shy and timid; the boldness or indifference in other cases is only a kind of bravado to cover up timidity. It may well be that timidity is the basis on which stuttering arises. If this is true, stuttering would then be a condition in which timidity shows itself by a peculiarity in speech.

There is some element besides timidity in the disease. The following suggestions may perhaps disclose what it is. In several cases there has been a determined effort to get rid of the trouble and perfect good faith on the part of the patient, yet at the bottom of his soul the patient really did not wish to be cured. This reminds one of some forms of hysteria, psychasthenia, and neu-

asthenia, when the disease is really produced by the patient in order to obtain some end, although he is absolutely unconscious of the self-production. It may be suggested that stuttering is a defect which tends to exclude him from the society of his fellows, and that persons who really have this unconscious tendency instinctively seize upon such a means of encouraging it.

Stuttering is therefore a diseased state of mind, which arises from excessive timidity and shows itself in speech peculiarities tending toward a condition of segregation, which will enable the person to avoid occasions where he will suffer on account of timidity.

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CHAPTER 37

EYES

The young infant has a marked tendency to sleep in the day-time rather than in the night. The eyes of the new born child, says Espinas, open by preference at twilight and in the evening.

The new born child squints, to avoid the brightness of the light. He has from birth a marked convergent power, which permits him to shelter his eye in the dark chamber formed by the angle of the eye.

But it is quite certain that a second period begins very soon, toward the third week, when the child's eyes have served their apprenticeship, and show a decided taste for light. Simply letting in the light will often quiet a crying child.

First occur motions that are not coordinate; then motions that are regular but involuntary; then, finally, voluntary motions. Then only can a child really direct his glance.

"I was surprised," says Darwin, "to see how slowly my son acquired the faculty of following an object with his eyes when it was waved quite rapidly before him; even at the age of seven months and a half, he had not acquired it fully."

The fourth month the child stretches out his hands to seize objects that are distant twice the length of his arm from him, and although disappointed, he tries several times to accomplish his purpose.

Morse finds that the function of the lacrymal glands is not developed at birth. Tears are shed, as a rule, at about three months.

In Chicago, among 2,030 boys and 2,735 girls, Smedley found 32 per cent. of the former and 37 per cent. of the latter with visual defects. These increased rapidly during the first three years of school life, decreasing after the age of nine, first slowly, then more rapidly, till the age of thirteen was passed. From ten onward, those with visual defect stand lower than those whose sight is normal, and the same was found true for nearly all ages in cases of defective hearing.

Gilbert tested children from six to eighteen, by asking them to estimate the number of inches between two marks twenty inches

apart. At the age of six, these comparative estimates were only about one-fifth the real distance, and up to fifteen the distance was always judged too short; fifteen to sixteen was the most accurate age, and older people overestimated.

Two principal forms of badly built, badly proportioned eyes are:

1. The small flat eye. (Hypermetropia.)
2. The long eye which causes short sight. (Myopia).

The small flat eye is irregularly developed or proportioned at birth, the condition being congenital; it is undersized and the condition is often inherited. It does not produce clear pictures on the retina, and the focusing apparatus is strained, to produce clear vision of the letters in a book. This may lead to headaches or to squinting. Eyes should be kept 12 inches from book.

Juvenile cataract is not infrequent of occurrence in the feeble-minded. It consists of an opacity of the lens substance or its capsule, or both, varying in degree from that in which the opaque zone can be barely detected to a greater density. There are errors of refraction in a large per cent. of cases. Hyperopia is most common (in 80 per cent. of cases); myopia is less frequent (found in 9 per cent. of cases).

Motor disorders, nystagmus and strabismus (the latter quite common) are found. In many cases of strabismus the central vision is very poor and the field of vision restricted. This amblyopia has been regarded by some as a condition antedating the squint, and in fact causing it, to the prolonged disuse of the squinting eye. The most frequent anomaly of the appendages of the eye is epicanthus, a ridge of skin, from the upper eyelid around the inner canthus which seems to be due to an unusual redundancy of the skin in this region. It may be unilateral or affect both eyes.

Nearly 8 per cent. of idiots are congenitally blind.

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CHAPTER 39

INSTRUCTION TO FIELD WORKERS

The preparation for field work is of great importance inasmuch as it is the foundation for a long and complete study to be made at the expenditure of a considerable amount of time and money. In going into the field one is proceeding into the unknown. It is therefore reasonable that she should be thoroughly familiar with such facts as are already known, as a basis for the investigation. If a study is being made of a person in an institution, the first step should be to read the record, taking notes and jotting down such questions as come to one's mind. The record of the physical examination of the inmate usually contains a fund of definite information observed and recorded by scientifically trained persons. Under institutional discipline it has been possible to subject the patient to a prolonged physical examination, to reëxamination, to keep him under observation, and to subject him to various laboratory tests. The information thus gained is of the greatest value and is of a kind which can not be acquired in the field. For this reason it should be given attention at this time. In taking notes for use in the field, it is advisable to acquire the names and addresses of physicians and committing officials, as well as those of the local poor officials and supervisors who may be used as references. An examination of the correspondence on the case is also worth while, as it gives the names of friends and relatives of the patient.

The next logical step in preparation is to see the patient, and if his mentality warrants the expenditure of time, to have a quiet, friendly visit with him alone. In any case it is advisable to see the patient personally, to inform oneself as to his present health, his progress in school, his skill in athletics or the life in his cottage. If the patient has even a moderate degree of intelligence he is often glad of the opportunity to send a message home, and this together with a personal knowledge of his affairs offers an excellent opportunity to stimulate the interest of the parents in the investigation and to establish an atmosphere of friendliness and confidence.

As to equipment, it is advisable to keep it as simple as possible in order to make traveling easy. A pocket map of the state showing the towns is essential, as well as maps of the states immediately adjoining. An atlas should be a part of the office equipment. There should be a small pocket notebook and larger pieces of paper which may be fastened together for the making of temporary charts. A camera of the folding variety or one that can be carried in a brief-case will add much to the family histories. When photographs of heads and shoulders are taken a portrait lens is of use to register the characteristic facial expression. A brief-case can be used not only for carrying the articles mentioned above but for railroad time-tables and articles for personal comfort such as drinking cup, purse, sweater, etc. It is well to have all of one's papers along at all times in order that time spent in waiting for trains or for interviews with busy persons may be used in assembling facts and studying them as a basis for further interviews.

The use of dates in family records is of more significance than would appear at first thought. Not only do dates tend to confirm facts which have occurred in recent years, but they place an individual historically, often connecting him with a tide of immigration or emigration, or with industrial events such as the building of a railroad or a canal. Such facts serve as an historic background on which to build the facts of everyday life.

In New York State the records of vital statistics in most of the towns go back to 1884 or 1886. In a few instances the town records go back as far as 1836 but such information is meagre and there are many gaps. In the records of births,—stillbirths and the births of illegitimate children, often not reported by the family, may sometimes be discovered. Likewise the records of marriages sometimes throw light upon cases of bigamy or children born outside of wedlock. Records of death not only give the cause of death which is most important in the consideration of heredity, but the age and date of birth, the birthplaces of the parents and the maiden name of the mother. In the case of elderly persons who died several years ago this is important as it frequently makes it possible to carry the history back a generation farther. The

discovery of the maiden name in an early generation often throws a new light on the family history and makes it possible to connect the family under investigation with other families in the same neighborhood.

Aside from the records of vital statistics there are other records of a more or less public character which are open to any person with a legitimate interest. These include the records of almshouses, orphan asylums, reformatories, jails and prisons, the records of poor officials and those of court convictions. The latter go back for a hundred years or more in many of the counties. For local publicity the files of newspapers are often useful. In some newspaper offices the articles are indexed under various heads such as murder, arson, embezzlement, etc., making it easy to find any article wanted. When tracing of ancestry is of sufficient importance to justify the time being spent, a search of deeds and other county records may be of interest. Visits to old cemeteries sometimes yield interesting bits of information as do the records of undertakers when the public records are not accessible.

The value of testimony, even when honest, depends much upon the intelligence and experience of the person interviewed. The descriptions of some persons are habitually tinged with optimism, while others tend to present things in the worst possible light. Much depends upon the temperament of the person interviewed, and this element must, as far as possible, be canceled by the person making the investigation and his personal equation must be taken into account.

The testimony of the heads of institutions, especially of the larger ones where there is broad experience, is valuable in that they have an opportunity to study the individual at close range for an extended period, and to compare his reactions with hundreds of others in the same fixed environment. School records and work records at the institution, as well as the manner in which the individual has reacted to the routine and discipline of the institution are of great importance. In New York State the Superintendent of Prisons at Albany can furnish information about persons who have been in state prisons in recent years. Information in regard to persons in penitentiaries and jails must be obtained

directly from these institutions. Records of the insane who have been inmates of the state hospitals may be obtained from the State Hospital Commission. Vital statistics may be obtained from the State Board of Health.

The physician is, of all persons, usually the best fitted to give information about the health and mentality of a family. As a rule he has a broad knowledge of humanity and is able to establish standards of ability and conduct. Not only has he a knowledge of individuals and their families, but he is often well informed as to social and industrial conditions in the community. In many cases he is untrained as to the diagnosis of feeble-mindedness, but together with the representatives of other professions he is rapidly becoming more conversant along this line.

Poor law officials, except in the case of superintendents of the poor who are also the keepers of almshouses, usually have only a limited acquaintance with the families with which they deal. They are frequently untrained in their work and their experience is limited to a knowledge of local conditions. Teachers are good observers but their knowledge is often weak on the side of physiology and psychology, and their occupation has trained them to take an optimistic view of a child's capabilities. They at least have the advantage of being able to compare the individual child with a group and with a still larger number who have been under their care in past years. The testimony of employees is of a different character from any previously mentioned and consequently is of great value. Employers are often able to give information in regard to ability, industry, tenacity of purpose, adaptability, thrift, and ability to coöperate.

Data can sometimes be obtained from other states by writing to persons in charge of institutions or those whose names are in the directory of the National Conference of Charities. As a rule information from a distance is difficult to obtain except in the case of persons who have been dealt with by public officials. Interviews made by distant investigators are for the most part unsatisfactory, inasmuch as the investigator is often untrained, and even when trained is likely to have different standards. Such information must, therefore, be limited usually to the records of public institutions.

Persons to interview

In investigating a family the first person to be interviewed is the mother, when the person studied is a child. The mother, better than any other person, can give the facts pertaining to the prenatal period, the circumstances of birth, infancy, and early childhood. If the person studied is an adult, the husband or wife, and the older brothers and sisters, especially when the parents are dead or senile, are the best persons to interview at the beginning. As many members of the family as possible, as well as their consorts and descendants, should be seen in person. Sometimes this requires repeated visits, visits at night or visits to places of employment.

Present neighbors should be used as reference guardedly, in fact it would seem as if one were justified in visiting them only under certain circumstances, owing to the comments and unpleasant gossip which are likely to ensue. If the reference and the family investigated are of a decidedly different social class, there is comparatively little chance of news being carried or of questions being asked. In the case where a crime has been committed, the public either knows or is justified in knowing the circumstances, and discussion of the affair is a public matter. As a rule physicians, teachers, employers and poor-law officials give enough information so that a visit to neighbors would be superfluous.

In conjunction with the description of an individual there should be a description of the environment which he has chosen, or the way in which he has modified the environment in which he has been placed. This is relative merely and should be compared with the standards in the community rather than with social conditions as a whole. A description of the general environment is essential. Taking the family as a whole into consideration, it is worth while to consider whether it is self-supporting or near the borderline of dependency, and whether it is above or below the social average for the community. Any particular traits such as alcoholism, criminality or wanderlust which appear in several members of the family or in more than one generation should be made the object of special inquiry.

An effort should be made to check all data, but as a matter of fact much must be left to the final judgment of the investigator.

Obviously data relative to ability and habits, about which the persons interviewed are likely to differ, should be most carefully checked and confirmed. In many instances testimony must be discounted according to the judgment of the investigator in order to make allowances for human nature. For example the testimony of a parent for a child cannot usually be accepted. In such cases undesirable traits which are freely mentioned by teachers, physicians and employers are either intentionally or unintentionally covered up. Information in regard to mentality and ability, because they cannot be easily measured, must necessarily be fragmentary and must be acquired from various sources. Prejudices of one person for another are usually easily detected so that information may be checked accordingly.

Anecdotes are of value in that they often create a striking or characteristic picture of an individual or his reaction to a given situation. Usually they cannot be confirmed, but if related as anecdotes, this is hardly necessary, especially when the facts are in accordance with the information acquired from other sources.

Handling the data

The system of recording and handling data is of as much importance as the acquiring of information, for if not put in a permanent and accessible form, the facts are inevitably lost. It is not simply a question of recording facts but of arranging them in logical order so that important points will be brought out. All records should be made with a view to the possibility of continuing them at some future time, and for this reason each new record should be made a basis for a future investigation. The name and residence of each individual should therefore be clear. In the case of women, owing to the numerous alliances which many of them make, to the uncertainty in many cases of a legal marriage, and to the fact that many return to the use of the maiden name or the name of a former consort, it seems best to use the maiden name throughout the record, recording also the names of the various consorts in order. The last place of residence as well as the places of residence for prolonged periods may be recorded at the end of the description of each individual.

The record itself should consist of a statement of facts. The impressions of the investigator are seldom given, but if they are, they are stated as such. It is both interesting and profitable to follow the case with a summary and discussion. In this the writer may summarize the case, make comments, deal in hypothetical questions, draw conclusions, and take other liberties which could not be taken in the record itself.

Readable record

The record should first of all be readable and the facts presented in such a way that a clear definite picture is left with the reader. There must be a combination of precision and reserve which the treatment of scientific material deserves, combined with a freedom and facility of expression which will handle the material to the best advantage. A wide vocabulary is useful and will often do away with a tiresome string of adverbs and adjectives. It is important to cultivate accuracy and to avoid loose or local terms. An exact quotation of the person interviewed is often more telling than any description of the investigator.

Ethics

The ethics of field work is a matter to which a thoughtful person must necessarily give consideration. In obtaining information about personal and family affairs and using it for a public record one is undoubtedly sacrificing individual rights for the good of the public. This is typical nevertheless of the trend of present social and civic affairs. In all cases information should be given voluntarily and should be handled with due consideration for the persons concerned. Conscious of the importance of her mission, and with sincerity of purpose the experienced investigator becomes able to handle the most intimate affairs in an impersonal way, without embarrassment to herself or the person investigated.

Another ethical question which arises is how far one is justified in running the risk of stirring up local gossip by making inquiry about a family. This, as in the case mentioned above, would seem to be justified by the end in view. Discussion following an investigation is inevitable, and although it is to be regretted

it is not of as serious importance as it would at first seem. Still another question which arises is how far an investigator is justified in giving information in order to confirm it or to obtain further facts. On this point there is likely to be considerable difference of opinion but it would seem at least as if one were justified in leading up to the subject in order that it may be suggested to the person being interviewed. It would not be ethical to spread information which is known only to a limited number. However in this as in other matters much must be left to the judgment of the investigator and the degree of confidence which exists between herself and the person being interviewed.

CHAPTER 40

SUGGESTIVE QUESTIONNAIRE

The following questionnaire compiled by Dr. Arthur L. Shaw, is indicative of the kind of questions that must be asked by the field worker, whether they are directed to other persons or are asked of himself in organizing his material and judgments about persons:

I. *Traits relating essentially to the intelligence, the capacity for acquiring knowledge, the judgment, etc.*

How easily did he learn; was it necessary for him to study very hard to keep up in school?

What was his standing in school? (School records.)

What did the teachers say about him?

Was he proficient in some subjects,—deficient in others?

Is his education up to his opportunities?

Are his powers of attention and concentration good or bad?

Does he observe well?

How capable is he in positions?

Is he considered to have good common sense?

Is his advice sought by others?

Is he quick, impulsive or deliberate in his judgment?

Is he definite or vague of purpose?

Does he plan with good foresight?

How practical is he? Can he use tools well?

II. *Traits relating essentially to the output of energy.*

In childhood — was he lively, active at work or play,—or lazy and sluggish?

In his play as a child what did he prefer? Did he exercise much imagination in it?

Is he naturally talkative or inclined to be silent?

Is he energetic, slow or sluggish?

Does he show a tendency to overactivity,—to much push and tension?

Is he active or overactive by fits and starts?

Does he spend his energy sensibly or in a desultory way?

III. *Traits relating essentially to the subject's estimate of himself.*

Is he self-reliant or self-depreciative (feeling of inferiority)?

Is he conceited, egotistic,—given to self-admiration? Is he vain, proud?

Does he pay unusual attention to his dress,—is he foppish?

Is he honest with himself,—does he emphasize his dislike for sham?

Does he seem to be genuine?

Does he blame others for his faults?

Is he inclined to pay much attention to his aches and pains,—is he inclined to self-pity?

IV. *Adaptability toward the environment.*

- (a) The more striking traits which on their abnormal side interfere in a rather general and striking way with contact with the environment.

Is he sociable, easy to get acquainted with, or does he hold people off?

Does he make friends easily?

If he prefers to be alone, how does he rationalize this?

Are there special circumstances under which he goes away by himself (e. g. when reprimanded, criticised, or when something is required of him)?

Is he bashful,—at ease with strangers? Is there a marked difference in behavior in his intercourse with friends, family or strangers?

When a child, did he play freely with other children?

- (b) Traits which, in a more specific but in a less obvious way, interfere with contact with the environment.

Is he selfish, or sympathetic, kind-hearted, altruistic?

Is he generous or penurious?

Has he genuine respect for the rights of others?

Is he tactful or offensive?

Is he quarrelsome, or easy to get along with?

Can he cooperate with others?

Does he want his own way?

Was he obedient when a child?

Is he much inclined to criticise others?

Does he take advice well, or does he always think he is in the right?

Is he stubborn,— set in his opinions?

Does he allow his mistakes to be pointed out to him?

Is he apt to blame others for his own mistakes?

Is he trustful or suspicious?

Is he resentful or forgiving?

Does he hold grudges long?

Is he easily offended?

Does he see slights when none are intended?

Is he jealous or envious?

Does he think the world treats him ill?

Does he feel satisfied with his environment? Does he feel above it?

Does he readily adapt himself to new environments (as, being away from home, moving to new places, etc.)?

(c) Traits which show to what extent the subject lays bare to others his real self.

Is there much known of his inner life, his views, his mental attitudes?

Is he frank and open?

Has he or has he not a tendency to unburden himself to other people, or special people?

Is he demonstrative?

If reticent, is he reticent generally or in relation to certain topics?

Is he more frank to certain people?

(d) Traits which in normal proportions are useful qualities, but in exaggerated form interfere with efficiency.

Is he conscientious,— has he a natural feeling of responsibility, or is he unusually scrupulous?

Is he easily blocked in his activity by scruples and doubts?

Is he committed to a routine, or is he free and agile mentally?

Is he “ finicky ” in his demands for truthfulness and justice?

(e) Traits which show a tendency to active shaping of situations, or the reverse.

Is he inclined to be a leader or inclined to be led?

Does he show much demand for self-assertion?

Is he courageous or cowardly?

Is he imitative,— suggestible?

(f) Traits showing the attitude toward reality.

Does he take things as they are, or as he wants them to be?

Is he phantastic or over-imaginative?

Is he inclined to build air-castles; how strong is the tendency to, and how much satisfaction does the subject get from, day-dreaming?

Is he truthful or apt to lie?

V. *Mood.*

Is he cheerful, light-hearted?

Is he serious or frivolous?

Is he enthusiastic?

Is he jovial, bubbling?

Has he good sense of humor?

Is he optimistic,— hopeful?

When such traits are present, are they more or less habitual, or do they come out only under certain circumstances?

How does he react to pleasure, good news, success? (Description of reaction.)

Is he despondent; has he a tendency to look on the dark side,— brood?

Does he become despondent without apparent reason?

Are there any topics he is especially inclined to worry about?

When such traits are present are they more or less habitual, or do they come out only under certain circumstances?

How does he react to real trouble, such as bereavement, failure or success, to responsibility? (Description of reaction.)

Does he make attempts to overcome his despondency or worrying?

Does he crave sympathy in his depression?

Does he seem to enjoy his discomforts?

Is he stable or variable in his moods, away up or away down?

Does his mood change easily?

Is he easily frightened?

Has he a tendency to anxiousness,— to forebodings?

Are there special topics which bring out his anxiousness?
When anxious, what is his reaction?
Has his mood apparently been influenced by any special occurrence or circumstance?
Is he irritable, quick-tempered?
Are there special topics or circumstances which irritate him?
How does he react when irritated?
Does the irritation last long?
Did he have "tantrums" when a child?
Is he patient?
Is he sensitive, touchy?
Is he fault-finding?
Is he phlegmatic, indifferent? Has this existed since childhood?

VI. *Instinctive Demands. Traits which are more or less clearly related to the sexual instinct.*

(a) Friendship.

Is he affectionate, demonstrative, or is he cold?
Does he have many friends, or is he whimsical in making friends?
Does he keep friends long, or does he give them up on slight provocation?
Is he sentimental in his friendship?
What qualities in others attract him?

(b) Attachment to members of the family.

Does he resemble in his ways and characteristics other members of the family?
Does he show any marked preference for, or great dependence on, any member of the family, or marked antagonism? (Father, mother, older or younger brother or sister.)
Has there been a change in this respect between childhood and adult life?
What was his reaction to the death of any member of his family?

(c) Attitude toward the other sex.

(1) General.

Is his personal attitude in harmony with his own sex? (Tomboy, sissy, mother's boy, mannish, effeminate.)

Is he natural and at ease with the opposite sex?

Is he or is he not especially attracted by the opposite sex?

Is he attracted by older or younger persons of the opposite sex?

Did he have many, few, or no love affairs?

Is he sentimental?

When love affairs were broken off, what was the reason?

What was the reaction toward disappointment in love?

Was he decided or wavering when the question of engagement or marriage came up?

In marriage or similar relationships, what is the attitude toward the partner? Is he affectionate, kind, or dissatisfied, irritable, fault-finding, jealous, over-anxious, indifferent, domineering,—or, on the other hand, very submissive?

Is there, or is there not, a desire for children?

(2) Specific Sexual Demands.

Is the demand for sexual gratification great or small?

(potency, psychic impotence, ejaculatio praecox, frigidity.)

Does the subject masturbate? If not, has he never masturbated, or when did he stop?

Are there any perversions?

(3) General Traits Derived from Sexual Instinct or Reaction Against Its Assertion.

Was there much sexual curiosity?

Does he talk much of sexual matters,—tell suggestive stories?

Does he indulge in gossip with a sexual coloring?

Is he particularly innocent, modest, prudish?

Does he show a special demand for nicety, neatness, cleanliness, moralizing?

Is he easily disgusted?

Are there any idiosyncrasies toward food or odors?

Is there any special tendency to cruelty, plaguing, tantalizing?

VII. *General interests.*

Is he interested in his work,—does he get satisfaction from it? or from other pursuits?

Is he ambitious, and in what direction?

Is he interested in sports and other diversions?
To what extent has he been able to satisfy his ambition?
What are his hobbies?
Has he any fads?
Does he read much, and what is the character of his reading?
Is he religious, does he get comfort from his religion, or is
his interest merely superficial?
Does he show any vague gropings, such as spiritualism,
occultism, theosophy, "deep subjects?"
Is he superstitious?
In what does he get his deepest satisfaction?

CHAPTER 41

SCHOOL RECORDS AND RETARDATION

When a person is asked how far he went in school he may reply "I never had much education" or "I was in the third grade." Now the grade a person was in when he left school is no proof that he belonged in that grade, for persons are often promoted every two years, because the desks get too small for them in the lower grades, and the promotion is not made on merit. Hence it is best to consult the school records and former teachers for information regarding the school ability. School records are considered important in the determination of mentality, for if a person reached the sixth or seventh grade on merit, but is a worthless person now the results are significant. Equally interesting is the situation where a person of almost no schooling has nevertheless made good and is self-supporting. Field work ought to be able to throw light on the usefulness of the present kind of education for normal, subnormal and feeble-minded persons and to make recommendations for a modification of the curriculum better to fit the needs of special cases. In order to do this the investigator should be familiar with the philosophy of education. Colvin points out that fundamentally all consciousness may be considered as both sensory and affective in nature. This means that all experience finds at its basis sensation on the one hand and feeling on the other. It is a fundamental fact for education to recognize that there can be no experience without sensation. Sensation must be interpreted, must be given a meaning, before it is of value in directing the behavior of the individual. This interpretation is what is known as perception. In any developed experience we never find simple sensation, but perception. Pure sensation is an abstraction. In the interpretation of sensation that constitutes perception, behavior is the essential fact.

The individual learns in so far as he *reacts* to his environment; he is educated by *doing*; the process is not passive. The definitions of children show how fundamental action is in the interpretation of experience. The following are examples of some of these, as quoted by various writers: Pickle is something green to eat. Kiss is if you hug and kiss somebody. Vain is if you always look in

the glass. A knife is to cut meat. A clock is to see the time. An armchair is to sit in. A garden is to walk in. A potato is to eat with meat.

A habit can be established by exercising it. Mere resolve without execution is worse than useless.

“By what means is education achieved?” There are four chief ways in which this is brought about; that is, through “trial and error,” through the “adaptive instincts,” through “self-directed imitation,” and finally through the formation of “free ideas.”

Trial and error method is the most fundamental process in all learning. A large part of the social progress of human beings is the result of this blind process of “try, try again.”

Play is one of the most serviceable forms of instinctive expression that education can avail itself of to direct conduct. Play is valuable for several reasons. In the first place, play is always a pleasurable activity and as such is desirable in itself. Further it stimulates the imagination and thus is a means of developing the intelligence. Through free play the child learns his place in the group. It gives him the opportunity of manifesting qualities of leadership on the one hand, and docility on the other. He finds that he can at times command, and that at others he must obey. He discovers his proper place in the group; he develops initiative and learns obedience.

Retardation

The amount of retardation of a child in school is frequently a strong indication of his intellectual status. Hence if a child is retarded in school it is well to attempt an explanation of the retardation, either in terms of non-attendance, frequent moving, illness or inherent dullness. Heilman writes:

“It is of interest to observe that, in spite of compulsion by law, attendance is the most frequent cause of retardation. Those of the next greatest frequency are late entrance and home life. If all the adequate causes be given in the order of their frequency of occurrence, they are as follows: Attendance 366, entrance 234, home life 222, health 182, school history 154, sight 138, nutrition 111, adenoids 64, deficiency 56, conduct 53, speech 48, hearing 45, language 39, tonsils 5. The total number of social causes is 1,015. They appear almost twice as often as the physical causes, which occur only 593 times. It appears to be probable that the social

causes are not only most frequent, but also most far-reaching in their consequences. Many of the physical causes would doubtless disappear with the improvement of some of the social causes."

Boas finds that:

Influence of retardation, so far as it has been studied, seems to be lasting. In other words, a retardation in development is never completely made good by long-continued development. When a child, through unfavorable influences, has grown slowly during a number of years, it will probably continue to grow longer than other normal children; but the total amount of its *growth will always remain too small*. (F. Boas and C. Wissler, *Statistics of growth* (Report of the U. S. Commissioner of Education for 1904. pp. 25-132.)

Illness in early childhood, malnutrition, lack of fresh air and physical exercise, are so many retarding causes, which bring it about that the growing individual of a certain age is in its physiological development younger than the healthy, well-nourished individual, who has plenty of fresh air, and who puts his muscular system to good use.

It seems more than likely, judging from the course of development of a few simple mental activities that have been made the subject of study, that mental development follows laws quite analogous to those of physical development. (E. Meumann, *Vorlesungen zur Einfuhrung in die experimentelle Padagogik* (Leipzig, 1907, vol. 1.)

References

Boas, Colvin, Heilman.

CHAPTER 42

SOCIAL REACTION

This is perhaps the most important topic of all those handled by the field worker. In the last analysis the ability to live in the community, self-supporting and law-abiding, as the test of life. He who accomplishes this has no need of a social physician. Ability to meet one's fellow men is a quality of supreme importance, and too little attention is paid to it in the formal preparation of persons for life. Education should deal in some practical way with this problem, especially in regard to those who are super-sensitive or over-retiring, or even over-boisterous in their demonstrations, for it is just such matters which make or mar one's career. The earliest sign of poor social adjustment should be noted, for it is easier to direct the stream from a point near its source. The amount of social failure that is due to this sort of thing is probably very great and the careful correction of these defects will be one of the ways of lessening insanity, vagrancy, pauperism and crime.

Terms describing five traits of character, used by Heilman:

1. Social reaction,—boldness or shyness.
2. Feeling and its expression,—amiability, responsiveness, sullenness or surliness.
3. General mental and physical activity,—stolidity, inertness, alertness, or nervousness.
4. Intellectual character,—reflectivity or impulsiveness.
5. Will or volitional character,—stubbornness, wilfulness, firmness, flexibility or vacillation.

Hall says:

"Manners are of course minor morals and should be from within outward, and not products of external environment. They belong intrinsically to character and are normally the physiological economies of expressing the higher and better sentiments. Here girls are more plastic than boys, more apt in putting on and off vivacity, languishing moods, drawling speech, fine ladyism, superior ways, accents and airs of many kinds."

Goethe well says that nothing is more significant of men's characters than what they find laughable.

It is one thing to rate the social reaction of adults and another to interpret that of children. The growing child passes through many phases, as can best be learned by studying Hall's Adolescence and then applying the knowledge to the direct study of the juvenile mind.

CHAPTER 43

ECONOMIC STATUS

This is a very definite matter and with attention can be exactly recorded. It is a question not only of the weekly wage, but of the disposition made of it. Some families pay their bills, others do not. Those who are often moving from one place to another should be under some suspicion as either poor workers or poor managers. A person with a very small income but good management will often live better and keep a finer home than a big earner but thriftless spender. The quality of articles purchased is also significant. It used to be taught that it was better to wear a dress of good quality but somewhat out of style, than a shoddy, stylish garment. The practice of pretty sensible people is changing in this respect, and due to the rapidity with which the styles vary it seems economy to some to buy garments which will last a season but no longer, because they cannot longer be worn and keep within the styles. The way the families studied handle this problem is of interest. Their dietary is also important, for on the quality of the food much depends as to the growth and metabolism of the offspring. The kind of a house one is willing to live in is also indicative of standards of living. Simple minds love to have things very ornate. They buy china with gaudy patterns, and variegated strings of beads. They wear ten-cent diamond rings and gay ribbons. This tendency carried to excess is an indication of insanity. On the other hand some homes are intensely dreary for the lack of anything bright and cheerful like a plant or a gay cushion. The inhabitants of such a home become so sodden and indifferent that they probably do not mind the faded, dreary barrenness of their surroundings, but this lack of taste and attention to the nice things of life marks them either as exceedingly poor, or very indifferent.

CHAPTER 44

SUMMARY AND ANALYSIS OF FIELD WORK

One of the great questions with regard to the feeble-minded is whether they ought to be allowed to become parents. The real test of this is the quality of their children and how they bring them up. These are questions for the field worker. A good parent not only brings good children into the world but makes every sacrifice to give them a good start in life. Parents who neglect their children, who feed them injudiciously, who overindulge or overpunish them, who swear and tell smutty stories before them, who encourage them to bring home what they can find and no questions asked, who fail to keep them in school or to send them to church run the risk of making undesirable citizens of their children, and are not desirable parents. It is for the field worker to cast up their account and appraise them as good or poor citizens. Those who fail in their parenthood are not wholly to blame. Instruction and preparation for this most important task should be given to all growing citizens and until they are given definite knowledge to go on, it is more by luck than good wit if they make no serious mistakes in bringing up their children.

As to the question whether the field worker or some outside scientist shall analyze the data gathered, the Bureau is convinced that the field worker should always give the first analysis of the material, and scientists can then give a reinterpretation if the field worker's conclusions seem to them insufficient or wrong. It is not wise to postpone analysis until a group of cases has been studied. Each family history is a unit in itself, which is not strictly comparable to any other unit, and requires careful study and intelligent thought. What has been found in one family can then be looked for in another and the differences between the two noted. The analysis of a group of families is more a statistical matter and the individuality of the cases is lost, as they are all reduced to a common denominator. The Bureau would not care to have field work done by a person who is incapable of analyzing results, or who is indifferent to conclusions. At first a field worker is very timid and reticent about trying to reach a deduction, but this timidity can be overcome in a measure by giving her ample

time to read up on the subject. Nothing gives her confidence like being set to read everything that has been published on the subject within the last two or three years. Going through the index medicus and looking over all the articles recently published gives even a new field worker much poise as to the scope of the subject in hand.

Analysis of the family as a unit of population

The net profit or loss to the State of the existence of any family, if it could be computed would be vastly interesting. More definite knowledge of this kind is necessary before the State can decide which families should be cut off and which should be allowed to reproduce. Families meet their tragic crisis usually in one or two generations. That is, if one has five generations of a family, the defects will tend to be most conspicuous in one or two of the generations, and in one or two of the branches, and will not be distributed evenly over the family in all generations. What it is that causes these bad spots is of interest to eugenists, and the prevention of them is the program that social reformers are seeking. "The evil that men do lives after them, the good is often interred with their bones." If some progenitors could be confronted with all the evil, illness and unhappiness that would entail in their lines, it is doubtful whether they would desire to leave issue.

